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2012 Annual Inspection and Maintenance Report for North Maybe Mine - East Mill Creek Restored Sediment Control Structure

Submitted by: Nu-West Industries, Inc. and Nu-West Mining, Inc.

Submitted to: United States Department of Agriculture, Forest Service

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ACRONYMS AND ABBREVIATIONS

AOC/CO Administrative Order on Consent/Consent Order

BMP Best Management Practice

EPA Environmental Protection Agency

GPM Gallons Per Minute

IDEQ Idaho Department of Environmental Quality

TCRA Time Critical Removal Action

USFS United States Department of Agriculture, Forest Service

1.0 INTRODUCTION

The restoration of the Sediment Control Structure located at the toe of the East Mill Dump at the North Maybe Mine (the Site) was completed in the fall of 2008 as a Time Critical Removal Action (TCRA), in accordance with the 2004 Administrative Order on Consent/Consent Order (AOC/CO) entered into by Nu-West Industries, Inc. and Nu-West Mining, Inc. (collectively Nu-West), the United States Department of Agriculture Forest Service (USFS), the United States Environmental Protection Agency (EPA), and the Idaho Department of Environmental Quality (IDEQ). The purpose of the restoration project was to contain, consolidate, and isolate sediments which contain elevated concentrations of selenium, to restore sediment retention ponds, and to implement erosion control measures on the face of East Mill Dump. The Site activities were completed according to the "Work Plan for a Time Critical Removal Action, North Maybe Mine East Mill Creek Sediment Control Structure Restoration" dated August 13, 2008. The USFS issued the "Time Critical Removal Action Memorandum", approving the proposed work plan, on August 18, 2008.

At the completion of the restoration project, Nu-West issued the "Report of As-Built Construction Activities for the Time Critical Removal Action, North Maybe Mine East Mill Creek Sediment Control Structure Restoration" (May 2009). Additionally, Nu-West issued the "Inspection and Maintenance Plan for the North Maybe Mine East Mill Creek Restored Sediment Control Structure" in May 2009 which indicated that inspection and maintenance for the sediment control structure should be completed and documented in an annual report.

1.1 PURPOSE

The purpose of this report is to document the inspection and maintenance activities that took place during the 2012 field season.

1.2 PROJECT LOCATION

The Site is located on the east side of Dry Ridge within the northern perimeter of the North Maybe Mine site, which is approximately 18 air miles northeast of Soda Springs, Idaho (Figure 1-1) and involves Federal Phosphate Leases I-04 and I-8289, as well as portions of USFS Special Use Permits SSC21 and SSC23.

2.0 SUMMARY OF SITE INSPECTION RESULTS AND MAINTENANCE ACTIVITIES

In accordance with the Inspection and Maintenance Plan, site inspections were completed on a monthly basis from May through October. Site inspections were completed on the following dates: May 2, June 5, July 5, August 6, September 4, and October 1. As the result of a localized heavy rain event that occurred in July, some maintenance to the access road ditches and sediment control structure was necessary. This maintenance was implemented October 22 through November 2. The following features at the site were inspected during each site inspection:

- · Rills on the East Mill Dump,
- Riprap Energy Dissipater,
- Riprap Toe Berm,
- Sediment Control Structure,
- Riprap below culvert outfalls,
- Graded area at the Sediment Control Structure,
- West Mill Dump Sediment Soil Consolidation Area, and
- Growth media borrow area.

Each of these site features are identified on either Figure 2-1 or 2-2. Features that immediately surround the sediment control structure are presented on Figure 2-2 while features that are further away (e.g., soil consolidation area, growth media borrow area) are shown in Figure 2-1.

During each inspection, a site inspection form was completed and photos were taken documenting the results of the inspection. The site inspection forms and photos for each inspection are included in Appendix A. All maintenance items are documented on the corrective action log, including the deficiency, the corrective action needed, and the date(s) action was taken. Additionally, pre and post-maintenance photos are included after the corrective action log. The corrective action log and photos are included in Appendix B.

Surface water samples were collected at IA1-55 (toe of East Mill Dump), IA1-28A (sediment pond), and IA1-30A (East Mill Creek below the sediment control structure) on a monthly basis from May through October. The sampling locations are shown on Figure 2-3. The results for total and dissolved metals are presented in Table 2-1. The results for inorganic parameters are presented in Table 2-2. The field parameters and flow measurements are presented in Table 2-3. A summary of each site inspection and a description of maintenance activities are provided below.

2.1 MAY 2 SITE INSPECTION

The first site inspection was completed on May 2, 2012. Snowpack left early this year and access to the site was relatively easy in early May. Flows at IA1-55 and IA1-30A were estimated to be 134 and 95 gallons per minute (gpm), respectively. The sediment pond contained water at a depth of 9.17 feet and was flowing through the coarse riprap covering the spillway of the sediment control structure. The water in the sediment pond was clear and the bottom of the pond was visible. No sediment accumulation was observed.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for May. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the concentration of selenium observed in May 2012 is slightly lower than concentrations of selenium observed in May 2011. Figure 2-5 presents time series flow plots for sample sites IA1-55 and IA1-30A. As can be seen in these flow plots, flows during the May 2012 sampling event, measured at 134 gpm, were considerably lower than those measured during the May 2011 sampling event of 673 gpm.

Some of the site features were partially covered in snow but generally appeared to be stable and functioning properly. The runoff volumes appeared to be quite low this spring. The inspection forms and photos are presented in Appendix A.

2.2 JUNE 5 SITE INSPECTION AND MAINTENANCE ACTIVITIES

The second site inspection was completed on June 5, 2012. Eight storm events, producing greater than 0.1 inches of precipitation, occurred since the previous inspection on May 2. These storms resulted in precipitation amounts ranging from 0.11 inches to 0.50 inches. These storms did not meet the 100-year, 24-hour storm or 25-year, 1-hour storm criteria which would require an additional inspection. Therefore, this inspection served as the regular monthly inspection.

Flow at IA1-55 was approximately 32 gpm and flow IA1-30A was approximately 17 gpm. The sediment pond contained water at a depth of 8.95 feet and water was flowing through the coarse riprap covering the spillway of the sediment control structure. The water in the sediment pond was green and the bottom of the pond was not visible. No sediment accumulation was observed.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for June. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the concentration of selenium observed in June 2012 is higher than concentrations of

selenium observed in June 2011. Figure 2-5 presents time series flow plots for sample sites IA1-55 and IA1-30A. As can be seen in these flow plots, Flows during the June 2012 sampling event, measured at 32 gpm, were considerably lower than those measured during the June 2011 sampling event of 233 gpm.

All of the BMPs were in good condition during the inspection. The site was stable and had handled the spring runoff with no issues. Vegetation had begun to grow and the site flows had subsided considerably since the previous inspection. The inspection forms and photos are presented in Appendix A.

2.3 JULY 5 SITE INSPECTION

The third site inspection was completed on July 5, 2012. One storm event of 0.07 inches occurred since the previous inspection on June 5. This storm did not meet the 100-year, 24-hour storm or 25-year, 1-hour storm criteria which would require an additional inspection. Therefore, this inspection served as the regular monthly inspection.

Flow at IA1-55 was approximately 19 gpm and flow IA1-30A was approximately 5.7 gpm. The sediment pond contained water at a depth of 8.9 feet and water was flowing through the coarse riprap covering the spillway of the of the sediment control structure. The water in the sediment pond was dark green. The bottom of the sediment pond was not visible. No apparent sediment accumulation was observed.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for July. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the samples collected in July 2012 have slightly higher concentrations than those observed during the July 2011 sampling event.

All of the BMPs were in good condition during the inspection. The site was stable and functioning as designed. The inspection forms and photos are presented in Appendix A.

2.4 AUGUST 6 SITE INSPECTION

The fourth site inspection was completed on August 6, 2012. Three storm events greater than 0.10 inches occurred since the previous inspection on July 5. These storms resulted in precipitation amounts ranging from 0.11 inches to 0.68 inches. These storms did not meet the 100-year, 24-hour storm or 25-year, 1-hour storm criteria which would require an additional inspection. Therefore, this inspection served as the regular monthly inspection.

Flow at IA1-55 was approximately 16 gpm and flow IA1-30A was approximately 3.6 gpm. The sediment pond contained water at a depth of 8.9 feet. Water could be heard flowing though the coarse riprap located on the spillway of the sediment control structure but could not be seen. The water in the sediment pond was clear to a depth of approximately 2 feet. The bottom of the sediment pond was not visible due to algae in the pond.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for August. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the samples collected in August 2012 have similar concentrations to those observed during the August 2011 sampling event.

Storm water runoff from a recent storm event (likely the July 7 event) concentrated in the area immediately below the soil consolidation area on West Mill Dump and formed a rill at the point where it flows down into the access road ditch. Additionally, the storm water scoured the access roadside ditch causing many of the sediment traps to fill, or partially fill, with sediment. The immediate TCRA area (toe berm, sediment pond, etc.) were not adversely affected by the storm. The rill was repaired and armored, maintenance was performed to the roadside ditch and the roadside sediment traps were cleaned out in October. A corrective action log and photos of the maintenance are presented in Appendix B. The inspection forms and photos are presented in Appendix A.

2.5 SEPTEMBER 4 SITE INSPECTION

The fifth site inspection was completed on September 4, 2012. One storm event occurred since the previous inspection on August 6. This storm resulted in a precipitation amount of 0.17 inches. This storm did not meet the 100-year, 24-hour storm or 25-year, 1-hour storm criteria which would require an additional inspection. The refore, this inspection served as the regular monthly inspection.

Flow at IA1-55 was approximately 14 gpm and flow IA1-30A was approximately 2.1 gpm. The sediment pond contained water at a depth of approximately 8.75 feet. Water was not observed flowing though the coarse riprap located on the spillway of the sediment control structure. The water in the sediment pond was clear to a depth of approximately 2 feet. The bottom of the sediment pond was not visible.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for September. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the samples collected during the same period in the previous year appear to have similar concentrations to those observed during the September 2012 sampling event.

The deficiencies noted in the August inspection regarding the rill and roadside ditch remain. All of the other BMPs were in good condition. Also noted was the North Dry Ridge mine permitting drilling crews had established an equipment and water storage area on the flat spot at the toe of the West Mill Dump waste consolidation area. The inspection forms and photos are presented in Appendix A.

2.6 OCTOBER 1 SITE INSPECTION

The sixth site inspection was completed on October 1, 2012. One storm event occurred since the previous inspection on September 4. This storm resulted in a precipitation amount of 0.10 inches. This storm did not meet the 100-year, 24-hour storm or 25-year, 1-hour storm criteria which would require an additional inspection. The refore, this inspection served as the regular monthly inspection.

Flow at IA1-55 was approximately 15 gpm and flow IA1-30A was approximately 1.8 gpm. The sediment pond contained water at a depth of approximately 8.7 feet. Water was not observed flowing though the coarse riprap located on the spillway of the sediment control structure. The water in the sediment pond was clear to a depth of approximately 1.5 feet and the bottom of the sediment pond was not visible.

Surface water samples were collected at sample sites IA1-55, IA1-28A, IA1-30A during this site inspection and serve as the monthly sampling event for October. The metals results are provided in Table 2-1. Figure 2-4 presents time series plots for each of the three samples. As can be seen in these time series plots, the samples collected during the same period in the previous year appear to have similar concentrations to those observed during the October 2012 sampling event.

The deficiencies noted in the August inspection regarding the rill and roadside ditch remain. All of the other BMPs were in good condition. Also noted was the North Dry Ridge mine permitting drilling crews continued to utilize an equipment and water storage area on the flat spot at the toe of the West Mill Dump soil consolidation area. A small woody plant growing up through the riprap of the sediment control structure was pulled by its roots. The inspection forms and photos are presented in Appendix A.

2.7 OCTOBER 22 THROUGH NOVEMBER 2 MAINTENANCE ACTIVITIES

A site walk was conducted with Vaughn Smith Construction (VSC) on August 10 to evaluate the cost of maintenance and the timeframe for implementation. Between October 22 and October 29 the following maintenance items were completed by VSC:

- Sediment was removed from the sediment traps located in the access road ditches to restore the capacity of the sediment traps;
- Additional rip rap was placed in the bottom of the access road ditch to prevent erosion;

- The rill located along the ditch access road was lined with rip rap to allow water to flow freely into the ditch;
- Sediment was removed from the outlet of the culvert extending beneath the haul road located at the north end of the pit to maximize the flow capacity of the culvert;
- The drainage channel located along the north side of the haul road located at the north end of the pit was cleared of rock to re-establish the surface water flow line; and
- The interceptor trench located on the north face of East Mill Dump was cleaned out and regarded to re-establish surface water flow into the pit.

Additionally, on November 2 James Williams hand seeded and fertilized all areas that were disturbed during the October maintenance activities. The corrective action log and photos documenting repairs are presented in Appendix B.

3.0 FLOW MEASUREMENT SUMMARY

Two weirs were installed near the sediment control structure between October 12 and October 20, 2009. The weirs are holding up well. For completeness, discharge rate tables are included in this report for both the upper weir (Table 3-1) and the lower weir (Table 3-2). Figure 2-5 presents time series flow plots for sample sites IA1-55 and IA1-30A.

4.0 REFERENCES

- AECOM. Inspection and Maintenance Plan for the North Maybe Mine East Mill Creek Restored Sediment Control Structure. May 2009.
- AECOM. Technical Memorandum for the Proposed Weir Installation at the North Maybe Mine East Mill Creek Restored Sediment Control Structure. October 2009.
- HWS. Work Plan for a Time Critical Removal Action, North Maybe Mine East Mill Creek Sediment Control Structure Restoration. August 13, 2008.
- HWS. Report of As-Built Construction Activities for the Time Critical Removal Action, North Maybe Mine East Mill Creek Sediment Control Structure Restoration. May 2009.

United States Forest Services (USFS). *Time Critical Removal Action Memorandum*. August 18, 2008.

TABLES

Table 2-1 Metals Results for Surface Water Samples by Date - 2012

IA1-30A E June 5, 2012 IA1-55 IA1-28A IA1-28A IA1-30A E July 5, 2012 IA1-55	Site Description Toe of East Mill Dump Sediment Ponds East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump	Cd 0.0016 0.0016 0.0015 0.0015 0.0014 0.0014 Cd 0.0019 0.0017 0.0018 0.0018 0.0018 0.0018 0.0018 0.0018 0.0018	L¹	V ²	Cr 0.0180 0.0160 0.0170 0.0170 0.0170 0.0170 0.0170 0.0072 0.0072 0.0076 0.0074	C C		NI 0.0150 0.0150 0.0140 0.0140 0.0130 0.0130 Ni 0.0170	ני	V ²	Se Total ssolve Se 2.4 2.3 2.2 2.2 2.3 2.2 2.2	L ¹	V ²	V 0.050 0.051 0.048 0.051 0.049 0.047	L¹	V ²	Zn 0.067 0.066 0.059 0.062 0.058 0.057 0.056	L ¹	V ²	Hardness as CaCO3 Hardness 288 283 288
IA1-30A E IA1-28A IA1-30A E IA1-55 IA1-30A E IA1-30A E IA1-30A IA1-55 IA1-55 IA1-28A IA1-28A IA1-30A IA1-30A IA1-30A IA1-30A IA1-30A	Toe of East Mill Dump Sediment Ponds East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0016 0.0016 0.0016 0.0015 0.0015 0.0014 0.0014 0.0014 Cd 0.0019 0.0021 0.0017 0.0018 0.0018 0.0018	L¹		0.0180 0.0180 0.0160 0.0170 0.0170 0.0170 0.0160 0.0170 0.0170 0.0170 0.00072 0.0072 0.0076			0.0150 0.0150 0.0140 0.0140 0.0130 0.0130 0.0130 Ni		V ²	Se 2.4 2.3 2.2 2.2 2.3 2.2 2.2 2.2	-	V ²	0.050 0.051 0.048 0.051 0.049 0.049	L1	V ²	0.067 0.066 0.059 0.062 0.058 0.057			288 283 288
IA1-28A IA1-28A IA1-30A IA1-55 IA1-28A IA1-30A IA1-55 IA1-28A IA1-28A IA1-28A IA1-30A IA1-30A IA1-30A IA1-30A	Sediment Ponds East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0016 0.0016 0.0016 0.0015 0.0015 0.0014 0.0014 0.0014 Cd 0.0019 0.0021 0.0017 0.0018 0.0018 0.0018	L¹		0.0180 0.0180 0.0160 0.0170 0.0170 0.0170 0.0160 0.0170 0.0170 0.0170 0.00072 0.0072 0.0076			0.0150 0.0150 0.0140 0.0140 0.0130 0.0130 0.0130 Ni		V ²	Se 2.4 2.3 2.2 2.2 2.3 2.2 2.2 2.2	-	V ²	0.050 0.051 0.048 0.051 0.049 0.049		V ²	0.067 0.066 0.059 0.062 0.058 0.057	L		288 283 288
IA1-55 IA1-28A IA1-30A IA1-30A IA1-30A IA1-30A IA1-30A IA1-30A IA1-55 IA1-28A IA1-28A IA1-30A IA1-30A	Sediment Ponds East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0016 0.0016 0.0016 0.0015 0.0015 0.0014 0.0014 0.0014 Cd 0.0019 0.0021 0.0017 0.0018 0.0018 0.0018	E ¹	V ²	0.0180 0.0160 0.0170 0.0170 0.0170 0.0160 0.0170 Cr 0.0072 0.0072	-	V ²	0.0150 0.0140 0.0140 0.0140 0.0130 0.0130 Ni	L'	V ²	2.4 2.3 2.2 2.2 2.3 2.2 2.2 2.2			0.051 0.048 0.051 0.049 0.049			0.066 0.059 0.062 0.058 0.057			283
IA1-28A IA1-30A IA1-30A IA1-30A IA1-30A IA1-30A IA1-28A IA1-28A IA1-28A IA1-28A IA1-30A IA1-30A	Sediment Ponds East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0016 0.0015 0.0015 0.0014 0.0014 0.0019 0.0019 0.0017 0.0018 0.0018 0.0018 0.0018	L¹	V ²	0.0160 0.0170 0.0170 0.0170 0.0160 0.0170 Cr 0.0072 0.0072	<u></u>	V ²	0.0140 0.0140 0.0140 0.0130 0.0130 0.0130 Ni	L¹	V ²	2.2 2.2 2.3 2.2 2.2 2.2			0.048 0.051 0.049 0.049			0.059 0.062 0.058 0.057 0.056			283
IA1-30A E IA1-30A E IA1-30A E IA1-30A E IA1-28A IA1-28A IA1-30A E IA1-30A E IA1-30A IA1-30A E	East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0015 0.0014 0.0014 0.0014 Cd 0.0019 0.0017 0.0019 0.0017 0.0018 0.0018	L¹	V ²	0.0170 0.0170 0.0170 0.0160 0.0170 Cr 0.0072 0.0072	Ľ	V ²	0.0140 0.0140 0.0130 0.0130 0.0130 Ni	L¹	V ²	2.2 2.3 2.2 2.2 2.2			0.051 0.049 0.049 0.047			0.062 0.058 0.057 0.056			288
IA1-30A E IA1-30A E IA1-30A E IA1-30A E IA1-28A IA1-28A IA1-30A E IA1-30A E IA1-30A IA1-30A E	East Mill Creek Below Sediment Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0015 0.0014 0.0014 0.0019 0.0019 0.0021 0.0019 0.0018 0.0018 0.0013	L¹	V ²	0.0170 0.0170 0.0160 0.0170 Cr 0.0072 0.0072	L¹	V ²	0.0140 0.0130 0.0130 0.0130 Ni	L¹	V ²	2.3 2.2 2.2 2.2			0.049 0.049 0.047			0.058 0.057 0.056			288
IA1-30A E June 5, 2012 IA1-55 IA1-28A IA1-28A IA1-30A IA1-30A July 5, 2012 IA1-55	Control Structure East Mill Creek Below Sediment Control Structure (Duplicate) Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0014 0.0014 0.0014 Cd 0.0019 0.0021 0.0019 0.0017 0.0018 0.0013	L¹	V ²	0.0170 0.0160 0.0170 Cr 0.0072 0.0072 0.0076	Ľ¹	V ²	0.0130 0.0130 0.0130 Ni	L¹	V ²	2.2			0.049			0.057			
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IA1-55 IA1-28A IA1-28A IA1-30A IA1-30A IA1-35	Toe of East Mill Dump Sediment Ponds Sediment Ponds (Duplicate) East Mill Creek Below Sediment Control Structure	0.0019 0.0021 0.0019 0.0017 0.0018 0.0018 0.0013	Ľ	V ²	0.0072 0.0072 0.0076	L¹	V ²	Ni	Ľ¹	V ²	STATE OF THE PERSON			0.048			0.056	100	6.	
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July 5, 2012 IA1-55		A STATE OF THE PARTY OF THE PAR		П	0.0071			0.0120			1.8			0.036			0.045			337
IA1-55	Toe of East Mill Dump	Cd			0.0073			0.0120			1.9			0.039			0.048			337
	Toe of East Mill Dump		L	V ²	Cr	Ľ	V ²	Ni	L	V ²	Se	L1	V ²	V	L1	V ²	Zn	L1	V ²	Hardness
	100 of East Mill Bamp	0.0021		Ц	0.0058		\Box	0.0190		Ш	1.8			0.037		Ш	0.083		Ш	388
IA1-55 To		0.0021		Ц	0.0057			0.0180			2.1			0.039			0.083			
100	oe of East Mill Dump (Duplicate)	0.0021	_	Н	0.0058	L		0.0190	\vdash		1.8		Н	0.037		Н	0.082		Н	374
		0.0020	_		0.0055			0.0170			2.0			0.037			0.079		1	
IA1-28A	Sediment Ponds	0.0016	-	Н	0.0057			0.0160		Н	1.8			0.039			0.059		Н	359
	East Mill Creek Below Sediment	0.0011	-	Н	0.0053			0.0140		Н	1.8			0.039			0.043			
IA1-30A	Control Structure	0.00061			0.0055			0.0090			2.0		9.5	0.029	7		0.023			374
August 6, 2012	2	Cd	-	V ²	Cr	L1	V ²	Ni	L1	V ²	Se	L1	V ²	V	L1	V ²	Zn	L1	V ²	Hardness
	article training of Machania Train	0.0019	100000		0.0054		-	0.0180			2.1			0.035	Same of the last		0.077		in the same	
IA1-55	Toe of East Mill Dump	0.0021			0.0055	181		0.0190	-		1.9		1	0.035	5	10	0.082			413
IA1-28A	Sediment Ponds	0.0011			0.0051			0.0160			1.7			0.035			0.039			382
IA1-26A	Sediment Fonds	0.00064	-		0.0055			0.0160			1.9			0.036			0.027			002
IA1-30A	East Mill Creek Below Sediment	0.00055		Ц	0.0056			0.0078		Ш	1.7		Ц	0.022	L		0.018		Ш	391
IAT-30A	Control Structure	0.0006			0.0050			0.0079			1.8			0.022			0.020			
E	East Mill Creek Below Sediment	0.00061		Ш	0.0047			0.0078		П	2.1		П	0.022			0.019			202
IA1-30A	Control Structure (Duplicate)	0.0000			0.0040			0.0000		10	4.0			0.000			0.019		8.87	383
		0.0006		V ²	0.0049	. 1	V ²	0.0080	. 1	V ²	1.8	11	V ²	0.022 V	, 1	V ²	NAME OF TAXABLE PARTY.	L	V ²	March 1995
September 4, 2	2012	Cd	-	V	Cr	150	V	Ni 0.0170	150	V	Se 2.0	L	V	0.034	L	J+	Zn 0.077	_	J+	Hardness
IA1-55	Toe of East Mill Dump	0.0020	+-	Н	0.0049			0.0170		Н	2.0	127		0.034		J+	0.077		J+	415
		0.0021	-	Н	0.0030			0.0160	_	Н	2.0		Н	0.035	_	J+	0.048		J+	
IA1-28A	Sediment Ponds	0.00086	+-		0.0049	_		0.0150	_		2.1			0.036	_	J+	0.034	_	J+	462
		0.0014	-		0.0051			0.0150	-		1.9		П	0.034	-	J+	0.046	_	J+	000
IA1-28A	Sediment Ponds (Duplicate)	0.00083			0.0047	-	100	0.0140	1		2.0			0.034		J+	0.032		J+	398
101 200 F	East Mill Creek Below Sediment	0.00055	5		0.0039			0.0069			1.9			0.020		J+	0.018		J+	427
IA1-30A	Control Structure	0.00055	5		0.0044			0.0071			1.9	1		0.022		J+	0.017		J+	721
October 1, 201	12	Cd	L	V ²	Cr	L	V ²	Ni	L'	V ²	Se	L1	V ²	V	L	V ²	Zn	L1	V ²	Hardnes
IA1-55	Toe of East Mill Dump	0.0023	3		0.0053			0.0200	-		2.1		Ш	0.036	-		0.085	_		632
1/41-00	700 of East Mill Dump	0.0023	_	100	0.0049	-	-	0.0200	_		2.1	14/01		0.035	1		0.097	_		
IA1-55 T	Toe of East Mill Dump (Duplicate)	0.0023	+	Ш	0.0052	-		0.0210	-		2.0		Ш	0.036	_		0.087	_		615
	,	0.0022	_	35	0.0049	_		0.0190	_		2.1	100		0.035	_	-	0.083	-		
IA1-28A	Sediment Ponds	0.00076	_		0.0049	-	\vdash	0.0170	_	\vdash	2.1	in land		0.035	-	-	0.023	-	120	516
		0.0003	+		0.0048	-		0.0160			2.0	1000								
-	East Mill Creek Below Sediment	0.00041			0.0045			0.0075			2.0			0.035	_	-	0.026	_		1

Notes:

¹Laboratory Qualifiers: Laboratory qualifiers have not been included as all laboratory qualifiers have been evaluated in data validation and validation qualifiers applied where applicable to the data.

²Validation Qualifiers: The following is an explanation of the qualifiers used.

J+ Qualified as estimated for potential high bias.

Table 2-2 Inorganic Results for Surface Water Samples by Date - 2012

Nu-West Industries, Inc.

readwaters o	of East Mill Creek (All Results in mg/l)			(25-25) (6) (6)		Cati	one					1		Δ.	nions		- 1					Δ	lkaliı	nity					100
				T		Cat	Uns		1		П			I	Inons			Bicarbonate			Carbonate	1	Kaill	Hydroxide			Total		
Contaminant	of Concern	Ca	L1	V ²	Mg	L1 V	2	L	V ²	Na	L1	V ²	CI	L¹ V	so4	L1	V ²	(as CaCO3)	L1	V ²	(as CaCO3)	L1	V ²	(as CaCO3)	L1	V ²	Alkalinity	L1	V ²
Location and Date	Site Description				42.				40				7	_		_		Total solved					Ve.						325
			. 1	, 2		. 1	2		1 , ,2	Na	. 1	,,2	CI	1 ,	2 504	10	\ ₂	Bicarbonate (as CaCO3)	11	V ²	Carbonate (as CaCO3)	11	1/2	Hydroxide (as CaCO3)	11	V ²	Total Alkalinity	L1	V ²
May 2, 2012	Toe of East Mill Dump	Ca 83.2	L	V	Mg 19.5	LV	9 193		V	Na	-	V	CI	LV	504	-	V	(as Cacos)	L	V	(as Caccos)	10-11	8.48	(as Caccos)	-80	100,000	Aikaillity	10 m CS	100000
IA1-55 IA1-28A	Sediment Ponds	81.7			19.2		+	+	+	\vdash	\vdash	+	\rightarrow	+	+	+	\vdash		\vdash	Н		\vdash			\vdash	Н		\vdash	\vdash
IA1-30A	East Mill Creek Below Sediment Control Structure	82.6			19.7		T	1	T		П	1	\top		\top	П	П		П	П						П		Г	
IA1-30A	East Mill Creek Below Sediment Control Structure (Duplicate)	83.6			19.5		T	\top	T		П		\top	1		П	П	-	П	П						П		П	
IAT-30A	Control Structure (Duplicate)																	Bicarbonate			Carbonate		,	Hydroxide		2	Total		
lune 5, 2012		Ca	L,	V ²	Mg	L1 V	2 P	L	V ²	Na	L1	V ²	CI	r, A	² SO ₄	L1	V ²	(as CaCO3)	F,	V ²	(as CaCO3)	L,	V-	(as CaCO3)	T.	V ²	Alkalinity	L'	V
IA1-55	Toe of East Mill Dump	102.0			20.8		1	+			Н	-	_	-	-	\vdash	\vdash		\vdash	Н		-	\vdash		+	Н		\vdash	\vdash
IA1-28A	Sediment Ponds	97.4			20.3		+	+	+		Н	+	-	+	+	\vdash	\vdash		\vdash	\vdash		-	\vdash		+	Н		\vdash	\vdash
IA1-28A	Sediment Ponds (Duplicate)	99.9			21.1	-	+	+	+		Н	+	-	+	+	+	\vdash		\vdash	Н		\vdash	\vdash		+	Н		\vdash	\vdash
IA1-30A	East Mill Creek Below Sediment Control Structure	101.0			20.8			\perp			Ш																		
July 5, 2012		Ca	Ľ	V ²	Mg	L1 V	2 1	L	1 V ²	Na	L¹	V ²	CI	L¹ V	2 504	L1	V ²	Bicarbonate (as CaCO3)	Ľ	V ²	Carbonate (as CaCO3)	L1	V ²	Hydroxide (as CaCO3)	L1	V ²	Total Alkalinity	Ľ	V
		108.0			23.7		1	.8	\top	5.2	П		3.8	\neg	19	4		173	3		<2.5			N/			173	3	
IA1-55	Toe of East Mill Dump	116.0			23.8		1	.9		5.3																			
		110.0			23.5		1	.8		5.2			3.7		19:	3		175	5		<2.5			N/			175	j	
IA1-55	Toe of East Mill Dump (Duplicate)	114.0	_		21.9		_	.8		5.1	-											L						\perp	L
	E	98.8			23.2		_	.7		5.2	_	\perp	4.0	\perp	18	9	Ш	156	3	Ш	<2.5	┖	_	N/A	4	\vdash	156	4	┡
IA1-28A	Sediment Ponds	107.0			22.4		_	.8	-	5.2		-	_	+	+	\perp	Ш		\perp	Ш		⊢	-		+	\vdash		+	⊢
	East Mill Creek Below Sediment	103.0	Н		23.1	_	_	.7	+	5.2	-	-	3.6	+	18	8	\vdash	160	4	Н	<2.5	-	-	N/	1	\vdash	160	4	⊢
IA1-30A	Control Structure	111.0	1000	10000	23.5		1	.8	0.000	5.4	1000		PROSES (C	314 (6)	00 500000		123638	Bicarbonate		1000.00	Carbonate	10000		Hydroxide		5000	Total		
August 6, 201	12	Ca	L1	V ²	Mg	L1 V	2	(L	1 V2	Na	L1	V ²	CI	L1 V	2 504	L1	V ²	(as CaCO3)	L1	V ²	(as CaCO3)	L1	V ²	(as CaCO3)	L	V ²	Alkalinity	L1	V
IA1-55	Toe of East Mill Dump	122.0			26.0					-				-															
IA1-28A	Sediment Ponds	111.0			25.5			+	+		Н		\neg	\top			Н								T			\top	
	East Mill Creek Below Sediment	St. 270 24		K	in hand			\top	+		Н	\neg	\neg	\neg	\top	\top	П			П		\vdash				П		\top	Г
IA1-30A	Control Structure	114.0			25.6						ш																		
	East Mill Creek Below Sediment	11320-10			OF THE PARTY		T	\neg	\top		П			\neg	1		П			П					Т	П			
IA1-30A	Control Structure (Duplicate)	113.0			24.4				_		Ш																		
			11	V ²		L1 V	2 .	, L	1 V2	Na	ان	V ²	CI	L1 V	2 504	4 1	V ²	Bicarbonate (as CaCO3)	L	V ²	(as CaCO3)	11	V ²	Hydroxide (as CaCO3)	11	V ²	Total Alkalinity	L1	V ²
September 4,		Ca	L	V	Mg	LIV	100	L	V	Na	-	V	CI	LV	504	H L	V	(as Cacos)	L	100	(as CaCO3)	-	N.	(as Cacos)	-	a Visi	Alkalillity	(CA-0)	-
IA1-55	Toe of East Mill Dump Sediment Ponds	123.0	_		25.8 27.2		+	+	+	-	\vdash	+	\rightarrow	+	+	+	\vdash		+	\vdash		\vdash	\vdash		+			+	\vdash
IA1-28A IA1-28A	Sediment Ponds (Duplicate)	118.0	_		25.4		+	+	+		+	+	+	+	+	+	H		+	Н		\vdash	\vdash		+	\vdash		+	\vdash
IA 1-20A	East Mill Creek Below Sediment	110.0			25.4	-	+	+	+		\vdash	+	\dashv	+	+	+	\vdash		\vdash	Н		\vdash			+			+	\vdash
IA1-30A	Control Structure ,	126.0			27.1							100000000000000000000000000000000000000			See Construction	No. of Contract	Sales of the last	Disastració	1		Control	2000		Uhadeavida		(September 1	Total		1000
October 1, 20	112	Ca	11	V ²	Mg	L1 V	2 4	(L	1 V2	Na	L1	V ²	CI	L1 V	2 504	4 L1	V ²	Bicarbonate (as CaCO3)	L1	V ²	(as CaCO3)	L	V ²	Hydroxide (as CaCO3)	L	V ²	Alkalinity	L	V
IA1-55	Toe of East Mill Dump	206.0		No.	28.3		-	-	10000	140		and the last	-		-	100									T			-	f
IA1-55	Toe of East Mill Dump (Duplicate)	200.0			28.3		+	+	+		\vdash	+	\rightarrow	+	+		Н			Н		\vdash			+			_	\vdash
IA1-28A	Sediment Ponds	160.0	_		28.2		+	+	+		\vdash	+	_	+	1		Н			Н		\vdash			+	\vdash		\top	
	East Mill Creek Below Sediment	.55.0		15.00			+	+	+		\vdash	\dashv	\dashv	\top			Н		\vdash	П					\top			\top	П
IA1-30A	Control Structure	183.0			26.6						ı						ı I		1	1		1	1		1			1	



· Notes:

NA - Not Analyzed

¹Laboratory Qualifiers: Laboratory qualifiers have not been included as all laboratory qualifiers have been evaluated in data validation and validation qualifiers applied where applicable to the data.

*Validation Qualifiers: It was not necessary to apply validation qualifiers to the data shown above therefore, no validation qualifiers are defined below.

Table 2-3 Field Parameters for Surface Water Samples by Date - 2012

	建筑建设设施设施设施设施设施			Field Pa	rameters				Flo	N
Sample Location	Site Description	Temperature	Conductivity	pH	Eh (ORP)	DO	DO	Turbidity	Flow	Flow
Location		Degrees C	uS/cm	Std Units	mV	%	mg/L	NTU	cfs	gpm
May 2, 2012										
IA1-55	Toe of East Mill Dump	6.39	381	6.63	191.2	75.6	9.30	1.13	0.299	134.00
IA1-28A	Sediment Pond	8.41	399	7.30	170.6	80.0	9.35	0.94	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	8.12	396	7.94	170.5	78.7	9.30	1.25	0.212	95.00
June 5, 2012										
IA1-55	Toe of East Mill Dump	6.83	501	6.69	130.5	75.7	9.20	0.54	0.072	32.00
IA1-28À	Sediment Pond	13.15	578	7.56	-200.7	132.1	13.86	1.95	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	11.57	551	6.89	156.7	90.4	9.83	1.13	0.038	17.00
July 5, 2012										
IA1-55	Toe of East Mill Dump	7.06	542	7.04	191.2	71.8	8.68	1.46	0.043	19.00
IA1-28A	Sediment Pond	13.94	605	8.47	158.9	174.5	17.83	3.39	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	11.97	594	6.55	249.3	69.2	7.42	1.79	0.013	5.70
August 6, 201	12									
IA1-55	Toe of East Mill Dump	7.35	577	7.05	131.3	80.1	9.60	0.50	0.035	16.00
IA1-28A	Sediment Pond	15.50	650	8.47	103.9	151.6	15.11	8.30	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	13.16	639	6.35	191.8	65.6	6.88	0.94	0.008	3.60
September 4,	2012									
IA1-55	Toe of East Mill Dump	6.99	613	7.36	158.0	70.8	8.55	0.65	0.030	14.00
IA1-28A	Sediment Pond	12.30	670	8.51	132.4	105.6	11.30	5.37	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	10.71	659	6.56	226.7	53.6	5.92	1.55	0.005	2.10
October 1, 20	112									
IA1-55	Toe of East Mill Dump	6.92	550	6.97	115.3	76.2	9.24	0.55	0.033	15.00
IA1-28A	Sediment Pond	10.92	676	8.49	96.7	145.8	16.08	4.70	N/A	N/A
IA1-30A	East Mill Creek Below Sediment Control Structure	11.26	703	6.81	146.9	66.5	7.26	1.63	0.004	1.80

N/A Not applicable, sample location IA1-28A is the sediment pond. Flow cannot be measured.

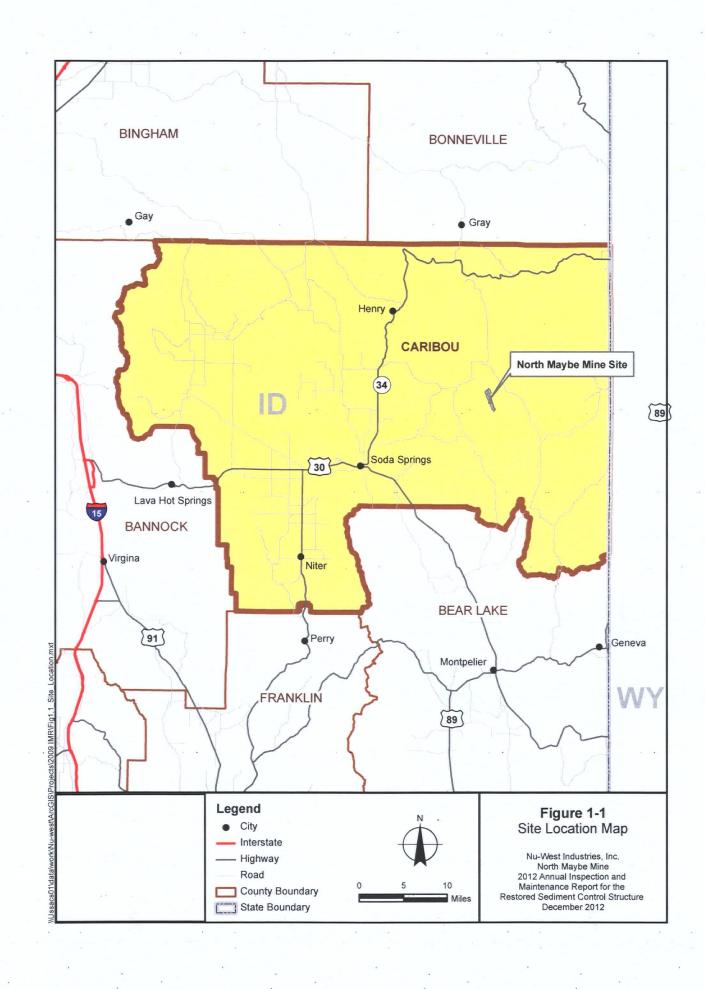
Table 3-1 Discharge Rates for 90-degree V-Notch Weir Located Upstream of the Sediment Control Structure (IA1-55)

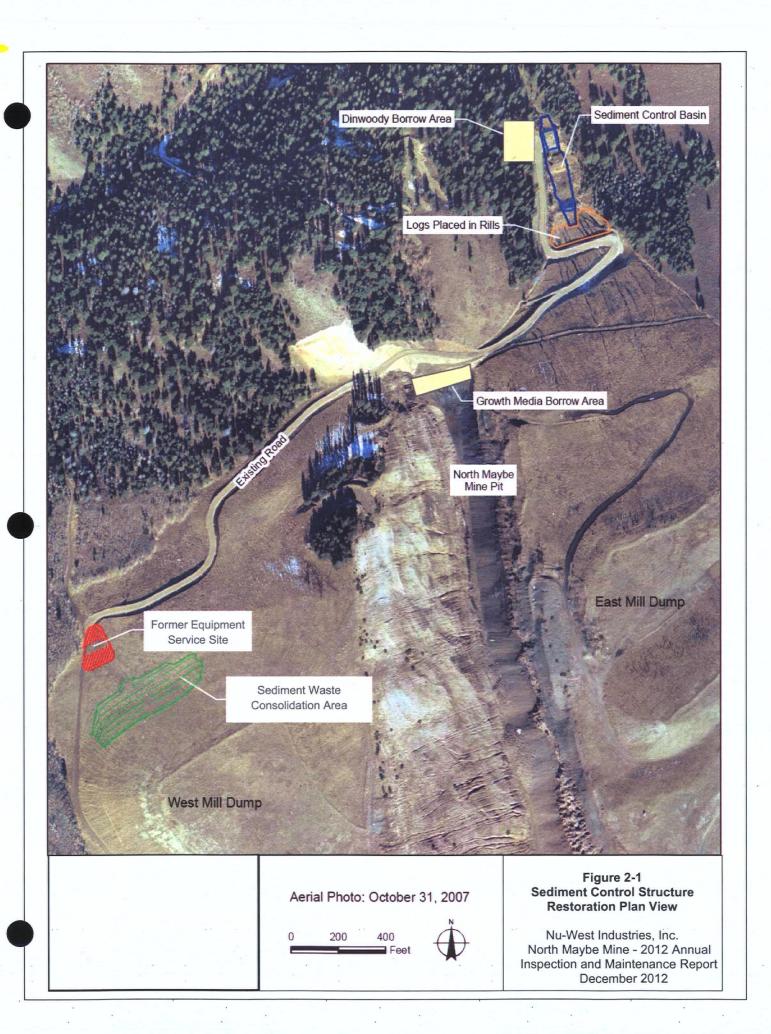
Head		RATES	Head		RATES	Head		RATES
(Ft)	(GPM)	(CFS)	(Ft)	(GPM)	(CFS)	(Ft)	(GPM)	(CFS)
0.010	0.0	0.000	0.345	80	0.177	0.680	435	0.968
0.015	0.0	0.000	0.350	83	0.184	0.685	443	0.986
0.020	0.1	0.000	0.355	86	0.191	0.690	451	1.004
0.025	0.1	0.000	0.360	89	0.197	0.695	459	1.022
0.030	0.2	0.000	0.365	92	0.204	0.700	467	1.041
0.035	0.3	0.000	0.370	95	0.211	0.705	476	1.060
0.040	0.4	0.001	0.375	98	0.219	0.710	484	1.078
0.045	0.5	0.001	0.380	101	0.226	0.715	493	1.098
0.050	0.6	0.001	0.385	105	0.234	0.720	501	1.117
0.055	0.8	0.002	0.390	108	0.241	0.725	510	1.136
0.060	1.0	0.002	0.395	112	0.249	0.730	519	1.156
0.065	1.2	0.003	0.400	115	0.257	0.735	528	1.176
0.070	1.5	0.003	0.405	119	0.265	0.740	537	1.196
0.075	1.8	0.004	0.410	123	0.273	0.745	546	1.216
0.080	2.1	0.005	0.415	126	0.282	0.750	555	1.237
0.085	2.4	0.005	0.420	130	0.290	0.755	565	1.258
0.090	2.8	0.006	0.425	134	0.299	0.760	574	1.278
0.095	3.2	0.007	0.430	138	0.308	0.765	584	1.300
0.100	3.6	0.008	0.435	142	0.317	0.770	593	1.321
0.105	4.1	0.009	0.440	146	0.326	0.775	603	1.342
0.110	4.6	0.010	0.445	151	0.335	0.780	613	1.364
0.115	5.1	0.010	0.450	155	0.345	0.785	622	1.386
0.113	5.7	0.011	0.455	159	0.355	0.790	632	1.408
0.120								
	6.3	0.014	0.460	164	0.364	0.795	642	1.431
0.130	6.9	0.015	0.465	168	0.374	0.800	653	1.453
0.135	7.6	0.017	0.470	173	0.384	0.805	663	1.476
0.140	8.4	0.019	0.475	177	0.395	0.810	673	1.499
0.145	9.1	0.020	0.480	182	0.405	0.815	684	1.522
0.150	9.9	0.022	0.485	187	0.416	0.820	694	1.546
0.155	11	0.024	0.490	192	0.427	0.825	705	1.570
0.160	12	0.026	0.495	197	0.438	0.830	715	1.593
0.165	13	0.028	0.500	202	0.449	0.835	715	
								1.618
0.170	14	0.030	0.505	207	0.460	0.840	737	1.642
0.175	15	0.033	0.510	212	0.472	0.845	748	1.666
0.180	16	0.035	0.515	217	0.483	0.850	759	1.691
0.185	17	0.037	0.520	222	0.495	0.855	771	1.716
0.190	18	0.040	0.525	228	0.507	0.860	782	1.741
0.195	19	0.043	0.530	233	0.519	0.865	793	1.767
0.200	20	0.045	0.535	239	0.532	0.870	805	1.792
0.205	22	0.048	0.540	244	0.544	0.875	816	1.818
0.210	23			250				
		0.051	0.545		0.557	0.880	828	1.844
0.215	24	0.054	0.550	256	0.570	0.885	840	1.871
0.220	26	0.058	0.555	262	0.583	0.890	852	1.897
0.225	27	0.061	0.560	268	0.596	0.895	864	1.924
0.230	29	0.064	0.565	274	0.609	0.900	876	1.951
0.235	31	0.068	0.570	280	0.623	0.905	888	1.978
0.240	32	0.072	0.575	286	0.637	0.910	901	2.006
0.245	34	0.075	0.580	292	0.650	0.915	913	2.033
0.250	36	0.079	0.585	298	0.665	0.920	925	2.061
0.255	37	0.083	0.590	305	0.679	0.925	938	2.089
0.260	39	0.088	0.595	311	0.693	0.930	951	2.118
0.265	41	0.092	0.600	318	0.708	0.935	964	2.146
0.270	43	0.096	0.605	325	0.723	0.940	977	2.175
0.275	45	0.101	0.610	331	0.738	0.945	990	2.204
0.280	47	0.105	0.615	338	0.753	0.950	1003	2.233
0.285	49	0.110	0.620	345	0.768	0.955	1016	2.263
0.290	52	0.115	0.625	352	0.784	0.960	1029	2.293
0.295	54	0.113	0.630	359	0.800	0.965	1043	2.323
0.300	56	0.125	0.635	366	0.816	0.970	1056	2.353
0.305	59	0.130	0.640	374	0.832	0.975	1070	2.383
0.310	61	0.136	0.645	381	0.848	0.980	1084	2.414
0.315	63	0.141	0.650	388	0.865	0.985	1098	2.445
0.320	66	0.147	0.655	396	0.882	0.990	1112	2.476
0.325	69	0.153	0.660	403	0.898	0.995	1126	2.507
0.330	71	0.159	0.665	411	0.030	1.000	1140	2.539
						1.000	1140	2.559
0.335	74	0.165 0.171	0.670	419	0.933			
0.340		1 171	0.675	427	0.950	■4-614-141-141-141-141-141-141-141-141-14		

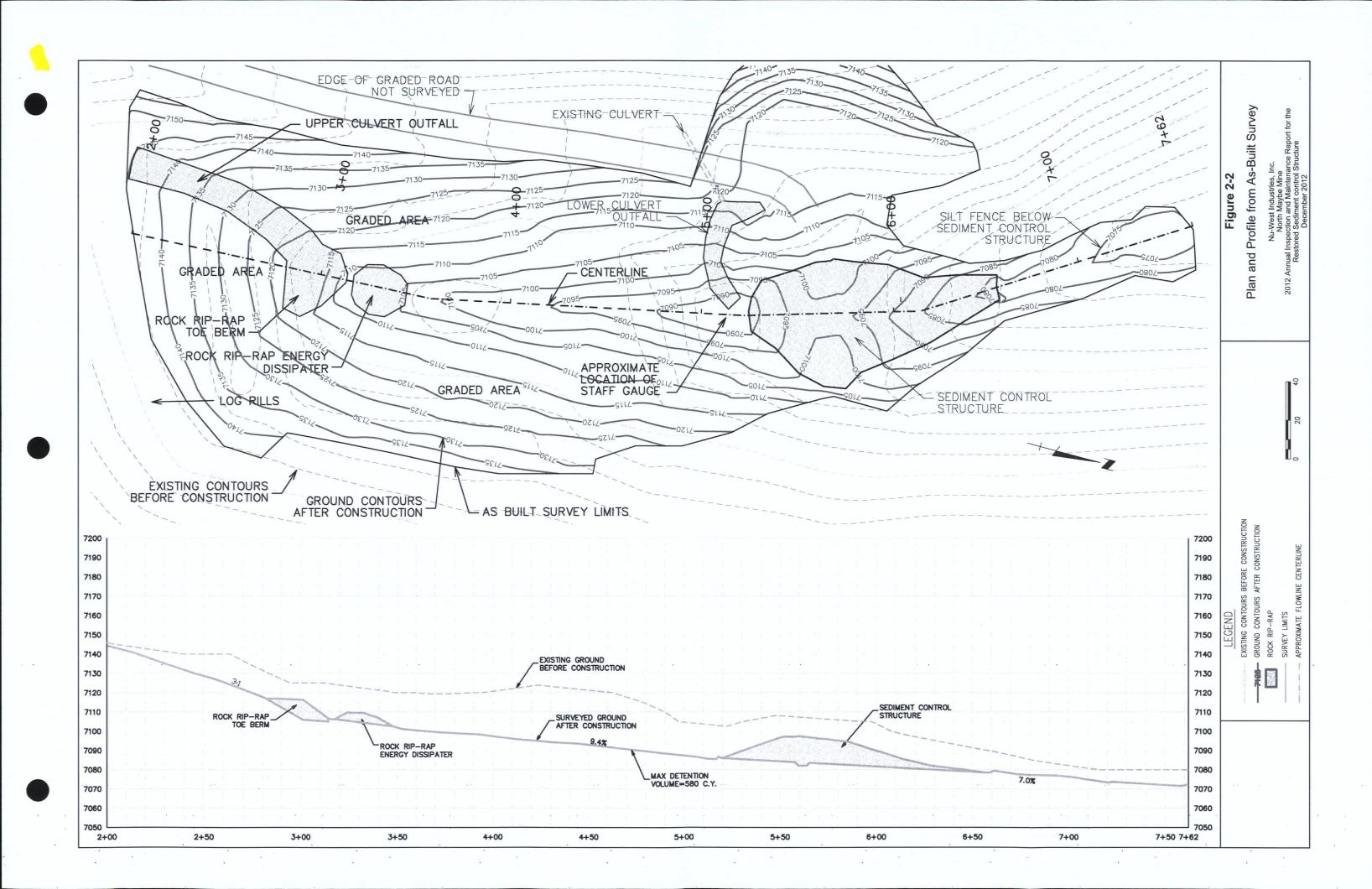
Table 3-2 Discharge rates for 90-degree V-Notch Weir Located Downstream of the Sediment Control Structure (IA1-30A)

Head		RATES	Head		RATES	Head	FLOW	The second secon
(Ft)	GPM	CFS	(Ft)	GPM	CFS	(Ft)	GPM	CFS
0.010	0.0	0.000	0.345	80	0.178	0.680	437	0.973
0.015	0.0	0.000	0.350	83	0.185	0.685	445	0.991
0.020	0.1	0.000	0.355	86	0.192	0.690	453	1.009
0.025	0.1	0.000	0.360	89	0.198	0.695	461	1.027
0.030	0.2	0.000	0.365	92	0.205	0.700	470	1.046
0.035	0.3	0.001	0.370	95	0.212	0.705	478	1.065
0.040	0.4	0.001	0.375	99	0.220	0.710	487	1.084
0.045	0.5	0.001	0.380	102	0.227	0.715	495	1.103
0.050	0.6	0.001	0.385	105	0.235	0.720	504	1.122
0.055	0.8	0.002	0.390	109	0.242	0.725	513	1.142
0.060	1.0	0.002	0.395	112	0.250	0.730	522	1.162
0.065	1.2	0.003	0.400	116	0.258	0.735	531	1.182
0.070	1.5	0.003	0.405	120	0.266	0.740	540	1.202
0.075	1.8	0.004	0.410	123	0.275	0.745	549	1.222
0.080	2.1	0.005	0.415	127	0.283	0.750	558	1.243
0.085	2.4	0.005	0.420	131	0.292	0.755	567	1.264
0.090	2.8	0.006	0.425	135	0.300	0.760	577	1.285
		0.007		139	0.309	0.765	586	1.306
0.095	3.2		0.430					
0.100	3.6	0.008	0.435	143	0.318	0.770	596	1.328
0.105	4.1	0.009	0.440	147	0.328	0.775	606	1.349
0.110	4.6	0.010	0.445	151	0.337	0.780	616	1.371
0.115	5.1	0.011	0.450	156	0.347	0.785	626	1.393
0.120	5.7	0.013	0.455	160	0.356	0.790	636	1.415
0.125	6.3	0.014	0.460	164	0.366	0.795	646	1.438
0.130	7.0	0.016	0.465	169	0.376	0.800	656	1.461
0.135	7.7	0.017	0.470	174	0.386	0.805	666	1.484
0.140	8.4	0.019	0.475	178	0.397	0.810	677	1.507
0.145	9.2	0.020	0.480	183	0.407	0.815	687	1.530
0.150	10.0	0.022	0.485	188	0.418	0.820	698	1.554
0.155	11	0.024	0.490	193	0.429	0.825	708	1.577
0.160	12	0.026	0.495	198	0.440	0.830	719	1.601
0.165	13	0.028	0.500	203	0.451	0.835	730	1.626
0.170	14	0.030	0.505	208	0.462	0.840	741	1.650
0.175	15	0.033	0.510	213	0.474	0.845	752	1.675
0.180	16	0.035	0.515	218	0.486	0.850	763	1.700
0.185	17	0.038	0.520	223	0.498	0.855	774	1.725
0.190	18	0.040	0.525	229	0.510	0.860	786	1.750
0.195	19	0.043	0.530	234	0.522	0.865	797	1.776
0.200	20 .	0.046	0.535	. 240	0.534	0.870	809	1.801
0.205	22	0.049	0.540	245	0.547	0.875	821	1.827
0.210	23	0.052	0.545	251	0.560	0.880	832	1.854
0.215	25	0.055	0.550	257	0.572	0.885	844	1.880
0.220	26	0.058	0.555	263	0.586	0.890	856	1.907
0.225	28	0.061	0.560	269	0.599	0.895	868	1.934
0.230	29	0.065	0.565	275	0.612	0.900	880	1.961
0.235	31	0.068	0.570	281	0.626	0.905	893	1.988
0.233	32	0.000	0.575	287	0.640	0.910	905	2.016
		0.072	0.575	294	0.654	0.915	918	2.043
0.245	34							
0.250	36	0.080	0.585	300	0.668	0.920	930	2.071
0.255	38	0.084	0.590	306	0.682	0.925	943	2.100
0.260	39	0.088	0.595	313	0.697	0.930	956	2.128
0.265	41	0.092	0.600	319	0.712	0.935	968	2.157
0.270	43	0.097	0.605	326	0.726	0.940	981	2.186
0.275	45	0.101	0.610	. 333	0.742	0.945	995	2.215
0.280	48	0.106	0.615	340	0.757	0.950	1008	2.245
0.285	50	0.111	0.620	347	0.772	0.955	1021	2.274
0.290	52	0.116	0.625	354	0.788	0.960	1035	2.304
0.295	54		0.630	361	0.804	0.965	1048	2.334
		0.121						
0.300	56	0.126	0.635	368	0.820	0.970	1062	2.365
0.305	59	0.131	0.640	375	0.836	0.975	1075	2.395
0.310	61	0.137	0.645	383	0.853	0.980	1089	2.426
0.315	64	0.142	0.650	390	0.869	0.985	1103	2.457
0.320	66	0.148	0.655	398	0.886	0.990	1117	2.488
0.325	69	0.154	0.660	405	0.903	0.995	1131	2.520
0.330	72	0.160	0.665	413	0.920	1.000	1146	2.552
0.335	74	0.166	0.670	421	0.938	1.500		2.002
() 2.25								









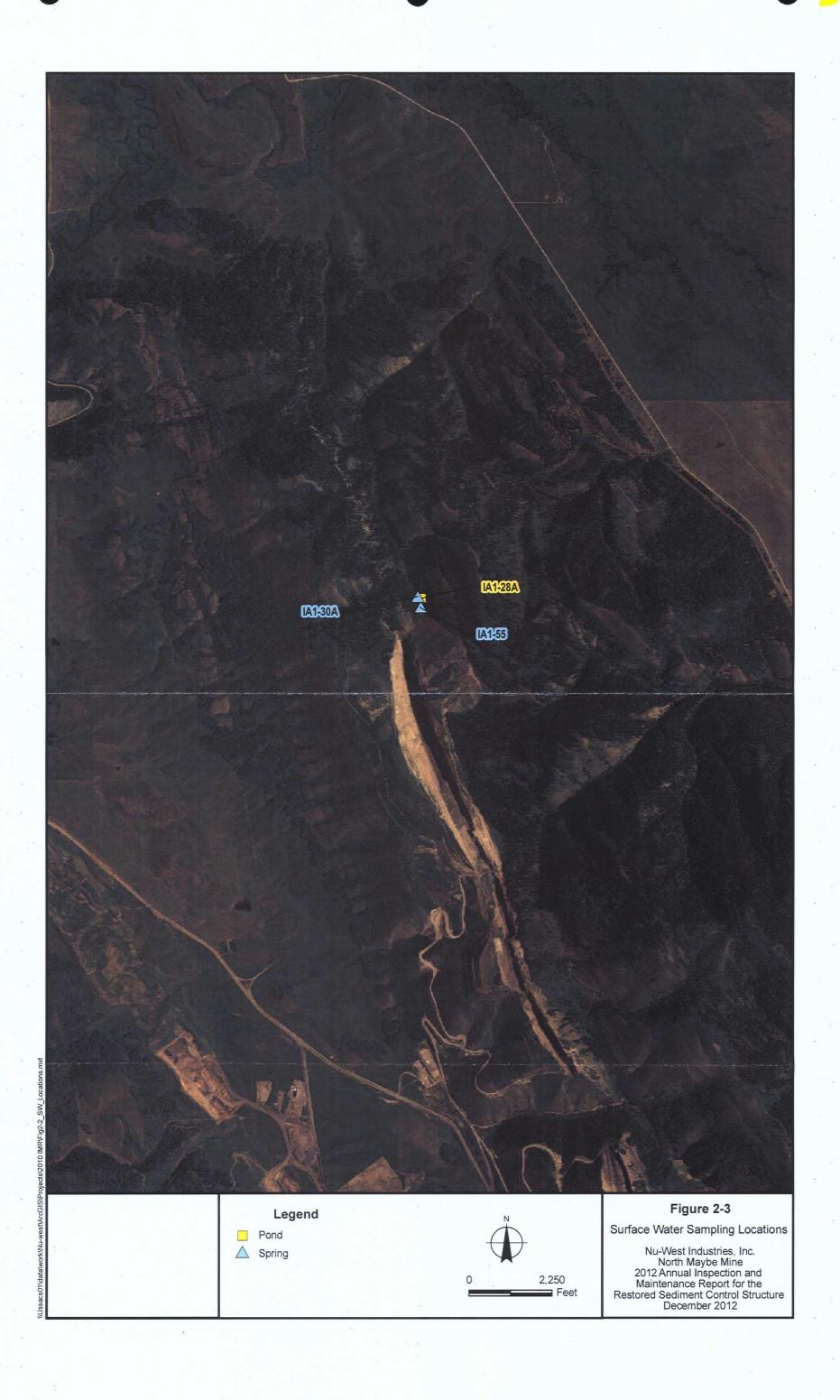
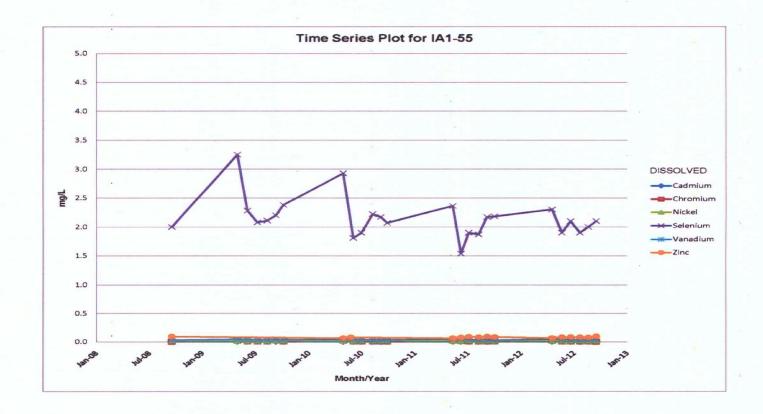
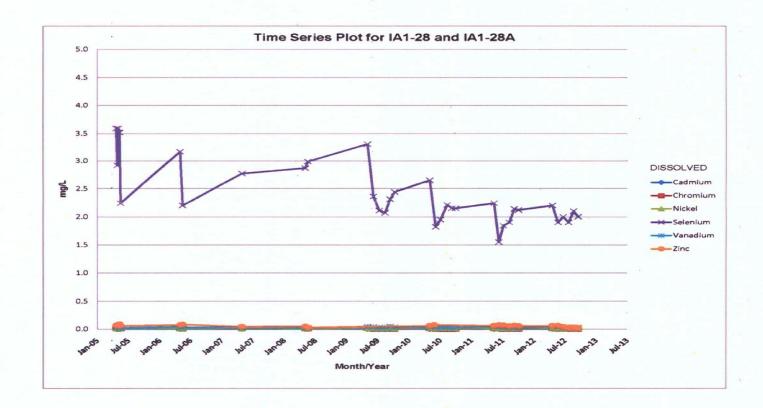
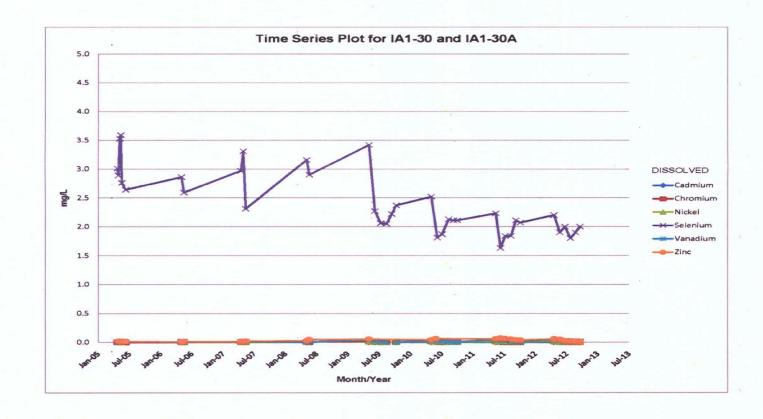
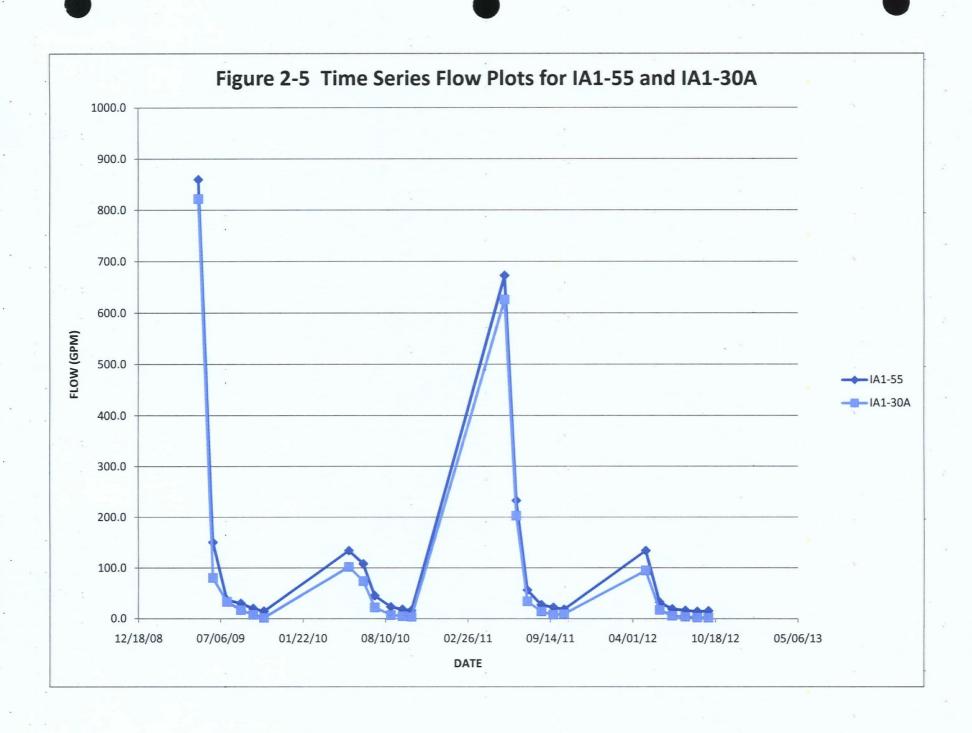


Figure 2-4 Time Series Plots for IA1-55, IA1-28/28A and IA1-30/30A









APPENDIX A NORTH MAYBE MINE TCRA SITE INSPECTION FORMS AND PHOTOGRAPHS

INSPECTION FORMS AND PHOTOS
MAY 2, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

General Information
Inspector's Name: JAMES B. WILLIAMS
Date: MAY 02, 2012 Start Time: 1345
Monthly Surface Water Sampling Event?: Varyes 🗆 No
Type of Monitoring: Ø Regular (Monthly) □ Post-storm event
Has there been a storm event since the last inspection? Tyes INO If Yes - Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in): FIRST INSPECTION OF THE YEAR/SEASON, THERE HAVE BEEN MANY STORMS SINCE THE LAST INSPECTION OF OCT. ZOII.
Weather at time of this inspection? □ Clear □ Cloudy □ Rain □ Fog □ Snow □ Windy Temperature: ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←
Approximate staff gauge reading & flow rate at the weir located at the Toe of East Mill Dump, above the sediment control structure (IA1-55):
Approximate staff gauge reading & flow rate at the weir located in East Mill Creek at toe of sediment control structure (IA1-30A): O.370 Staff Gauge Reading (feet) 95 Corresponding Flow Rate (gallons per minute) Has the flow increased or decreased since the last site inspection? The last site inspecti
Is any water flowing through the splilway in the Sediment Control Structure? Wes ON If yes, describe: FLOWING THROUGH COARSE RIPRAP OF THE SPILLWAY.
Surface Water Sampling: Monthly (May-Oct.)
Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.
Toe of East Mill Dump Cross Valley Fill Sediment Pond East Mill Creek (IA1-55) (IA1-28A) (IA1-30A)
Sample Collected? IZYes INO IZYes INO IZYes INO
Depth of Sediment at Staff Gauge in Sediment Pond (Feet): NO ACCUMULATION OF SEDIMENT
Water level in Sediment Pond (Feet): 9.17 ON 57*FF Clarity (Feet): 9 FT - CAN SEE BOTTOM OF THE POND.

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

Location	ВМР	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	©2 Yes □ No	
MD Sediment Pond	Riprap below Culvert Outfalls	 ✓ Riprap is in-place (i.e., not washed away) ✓ No soil washed out from under riprap ✓ No diversion of runoff flow around riprap resulting in additional rill erosion 	e∕Yes □ No	NO EVIDENCE OF HEAVY PUNDED THIS SPRING.
MD Sediment Pond	Riprap Energy Dissipater	 ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure remains unblocked 	lzYes □ No	
EMD Sediment Pond	Sediment Control Structure	 ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, ✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure. ✓ Pore spaces within sediment control structure remains unblocked ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, 	tz∕√es □ No	

East Mill Creek Sediment Control Structure Site Inspection Form Page 3 of 3

Monitori		, After Storm Events ≥ 2.64" in 24 Hour Period ents ≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour		
Location	ВМР	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
		✓ Riprap is in-place (i.e., not washed away)	tèrYes	SOME SNOW STILL COVERING THIS AREA.
EMD Toe	Riprap Toe Berm	✓ Type II geotextile is not being undercut beneath the sediment control structure	□ No	APPEARS OK
		✓ Logs are in-place in rills (i.e., not washed away)	Ør ₹es	
EMD Rills	Erosion Controls	✓ Rills are not increasing in size (i.e., no additional erosion is occurring)	□ No	·
Growth Media			₽ Yes	
Borrow Area	Revegetation Efforts*	✓ No rill development	□ No	
West Mill Dump			₽ Yes	
Soil Consolidation Area	Revegetation Efforts*	✓ No rill development	□ No	
NO SIEN	MOST ROAUS	E AND HAS HANDLED/15 HAN IDE DITCHES ARE STILL FILLE PLINOFF THIS YEAR.		
Print Name & Title:	JAMES B.	anent cover under the "Corrective Action Needed/Notes Williams - INSPECTOR End Time: Date:		

NORTH MAYBE MINE TCRA INSPECTION PHOTOS – MAY 2, 2012



Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking south, showing that some portions of the graded area surrounding the sediment pond, the riprap energy dissipater and the riprap toe berm are partially covered with snow.

NORTH MAYBE MINE TCRA INSPECTION PHOTOS – MAY 2, 2012



Photo taken looking north, showing the upper V-notch weir, and the sediment control structure.



This photo shows the toe of the riprap energy dissipater looking south. This photo shows the riprap energy dissipater is in good condition.

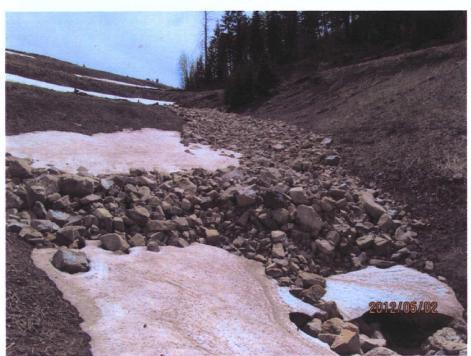


Photo taken looking southwest, showing the riprap toe berm and riprap below the upper culvert. Some snow remaining.



Photo taken looking southeast, showing the riprap below the upper culvert and logs in rills on East Mill Dump. Logs in rills are slightly snow covered.



Photo taken looking east, showing the lower culvert riprap outfall (right foreground) and the clarity of the sediment control pond.



Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure.



Photo taken looking north, showing a close up of the riprap lined channel below the sediment control structure. This area is stable and in good condition.



Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir. The riprap channel is in good condition.



Photo taken looking south of the lower weir and sediment control structure. This area is stable and in good condition.



Photo taken looking south, showing the waste consolidation area. Area is free of snow with no evidence of erosion.



Photo taken looking southeast, showing the waste consolidation area. Area is free of snow with no evidence of erosion.



Photo taken looking east, showing the upper access road. Road and ditch are still partially snow covered.



Photo taken looking east, showing the access road along the North Maybe Pit end wall. Some rock has rolled into the ditch but still maintains a flow line.



Photo taken looking east, showing the lower portion of the access road. Ditch is still partially snow covered.



Photo taken looking west, showing the lower portion of the access road. Ditch is still partially snow covered.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion.

INSPECTION FORMS AND PHOTOS
JUNE 5, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

General Information					
spector's Name: JAMES B. WILLIAMS					
Date: JUNE 05, 2012 Start Time: 1230					
Monthly Surface Water Sampling Event?: ☐ Yes ☐ No					
Type of Monitoring:					
Has there been a storm event since the last inspection? Eyes No STORMS OVER 0.10"/DAY NOTEO BELOW: If Yes - Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in): C5/C3 16:03 2 HR 4min 0.11" 05/18 0:02 1/HR 44 MIN 0.21" 05/27 4:01 19 HR 41 MIN 0.50" 05/O4 0:23 13 HR 25min 0.26" 05/24 9:19 2 HR 23 MIN 0.17" 05/28 0:59 16 HR 30 MIN 0.21" 05/C5 9-34					
0.240 'Staff Gauge Reading (feet) 32 Corresponding Flow Rate (gallons per minute)					
Approximate staff gauge reading & flow rate at the weir located in East Mill Creek at toe of sediment control structure (IA1-30A):					
By 102 GPm AT IAI-55, By 78 GPm AT IAI-30A. Is any water flowing through the spillway in the Sediment Control Structure? The INO If yes, describe:					
FLOWING THROUGH COARSE RIPRAP OVER THE SPILLWAY.					
Surface Water Sampling: Monthly (May-Oct.) Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.					
Toe of East Mill Dump Cross Valley Fill Sediment Pond (IA1-55) Sediment Pond (IA1-28A) East Mill Creek (IA1-30A)					
Sample Collected? EYes I No EYes I No					
epth of Sediment at Staff Gauge in Sediment Pond (Feet): NO ACCUMULATION OF SEDIMENT					
Water level in Sediment Pond (Feet): 8,95' ON STATE					
arity (Feet): ABOUT G FEET. WATER IN POND IS DARK GREEN, CANNOT SEE BOTTOM.					

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

After Storm Events≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour Storm Event) (May-Oct.)				
Location	BMP	BMP Functionality	BMP Functioning Properly?	Corrective Action Needed/Notes
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	Yes No	
EMD Sediment Pond	Riprap below Culvert Outfalls	 ✓ Riprap is in-place (i.e., not washed away) ✓ No soil washed out from under riprap ✓ No diversion of runoff flow around riprap resulting in additional rill erosion 	Yes No	
EMD Sediment Pond	Riprap Energy Dissipater	 ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure remains unblocked 	Ø∕Yes □ No	
EMD Sediment Pond	Sediment Control Structure	 ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, ✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure. ✓ Pore spaces within sediment control structure remains unblocked ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, 	Yes No	

East Mill Creek Sediment Control Structure Site Inspection Form Page 3 of 3

EMD Toe Riprap Toe Berm Application Riprap Toe Berm Application Riprap Toe Berm Application Riprap Toe Berm Application Application Revergetation Efforts No rill development Revergetation Revergetation Efforts No rill development Revergetation	Monitori		, After Storm Events≥ 2.64" in 24 Hour Period ents≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour		
EMD Toe Riprap Toe Berm / Type II geotextile is not being undercut beneath the sediment control structure	Location			BMP Functioning	Corrective Action Needed/Notes
the sediment control structure Logs are in-place in rills (i.e., not washed away) Rills are not increasing in size (i.e., no additional erosion is occurring) Revegetation Efforts* No rill development West Mill Dump Soil Consolidation Area Revegetation Efforts* No rill development No Revegetation Efforts* No rill development No Revegetation Efforts* No rill development Revegetation Efforts* No rill de		<u> </u>	✓ Riprap is in-place (i.e., not washed away)	☑ Yes	
EMD Rills Erosion Controls Rills are not increasing in size (i.e., no additional erosion is occurring) Growth Media Borrow Area Revegetation Efforts No rill development Deves No rill development Revegetation Efforts No rill development Revegetation Efforts No rill development Print Name & Title: This size (i.e., no additional erosion is occurring) No rill development No rill development Revegetation Efforts No rill development Revege	EMD Toe	Riprap Toe Berm		□ No	· ·
Growth Media Borrow Area Revegetation Efforts* / No rill development West Mill Dump Soil Consolidation Area Revegetation Efforts* / No rill development Devices This site is stable and has handled spring Rought Roug			✓ Logs are in-place in rills (i.e., not washed away)	☑ Yes	
Revegetation Efforts*	EMD Rills	Erosion Controls		□ No	
West Mill Dump Soil Consolidation Area Comments: THIS SITE IS STABLE AND HAS HANDLED SPRING RUNOFF WITH NO PROBLE VEGETATION IS GROWING AND FLOWS HAVE STARTED TO SUBSIDE. Note: Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title: And B. WILLIAMS - INSPECTOR End Time: 1530		Revegetation Efforts*	✓ No rill development		
Soil Consolidation Revegetation Efforts* No rill development Area Comments: THIS SITE IS STABLE AND HAS HANDLED SPRING RUNDER WITH NO PROBLE VEGETATION IS GROWING AND FLOWS HAVE STARTED TO SUBSIDE. Note: Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title: JAMES B. WILLIAMS - INSPECTOR End Time: 1530		'			· <u>-</u>
THIS SITE IS STABLE AND HAS HANDLED SPRING RUNOFF WITH NO PROBLE VEGETATION IS GROWING AND PLOWS HAVE STARTED TO SUBSIDE. Note: Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title: JAMES B. WILLIAMS - INSPECTOR End Time: (530)	Soil Consolidation	Revegetation Efforts*	✓ No rill development		
Print Name & Title:	V				
Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title:					
Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title: JAMES B. WILLIAMS - INSPECTOR End Time: 1530					,
Document when vegetation is at 70% permanent cover under the "Corrective Action Needed/Notes" column. Print Name & Title:					
		getation is at 70% perm	anent cover under the "Corrective Action Needed/Note	s" column.	
			•		
Signature:	Signature:	3. W		105/12	



Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking east showing the logs in the rills on East Mill Dump. No evidence of erosion is present.



Photo taken looking south, showing the riprap lined upper culvert outfall, the riprap toe berm, and the riprap energy dissipater. No evidence of erosion is present.



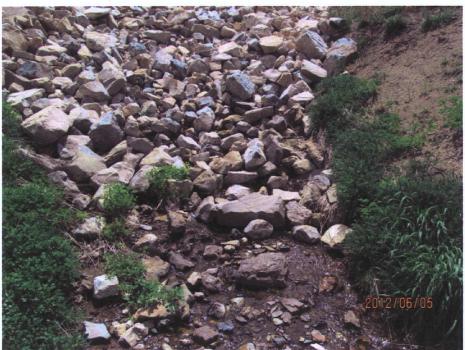
Photo taken looking south, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking west, showing the lower culvert outfall and clarity of the sediment control pond. Riprap armor below lower culvert outfall is doing a good job preventing scour and erosion.



Photo taken looking north, showing the upper weir and the sediment control structure. No evidence of erosion is present.



This photo is the toe of the riprap energy dissipater. Riprap armor is holding up well.



Photo taken looking north, showing the east slope of the sediment control pond. Vegetation has established well. No signs of erosion are observed on this slope.



Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure.



Photo taken looking south, showing a close up of the lower weir and riprap lined channel below the sediment control structure. This area is in good condition with vegetation well established on side-slopes.

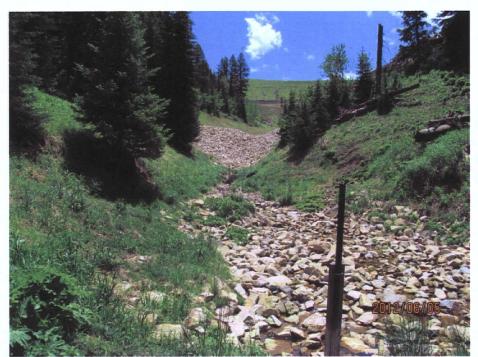


Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir.



Photo taken looking south, showing the waste consolidation area.



Photo taken looking southeast, showing the waste consolidation area. Area shows no evidence of erosion.



Photo taken looking east, showing the access road along the North Maybe Pit end wall. Some rock has rolled into the ditch but still maintains a flow line.



Photo taken looking east, showing the lower portion of the access road. Road and ditch are in good condition with no signs of erosion.



Photo taken looking west, showing the lower portion of the access road. The road and ditch are in good condition.



Photo taken looking north, showing the lower portion of the access road. The road and ditch are in good condition.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion and vegetation established.

INSPECTION FORMS AND PHOTOS JULY 5, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

General Information						
Inspector's Name: JAMES B. WILLIAMS						
Date: July 05, 2012 Start Time: 1030						
Monthly Surface Water Sampling Event?: ☐Yes ☐ No						
Type of Monitoring: ☑ Regular (Monthly) ☐ Post-storm event						
If Yes - Storm Start Date 14:00, 3	te & Time: Storm Duration (hrs): HES 53MIN, 0.07"	Approximate Amount of Precipital	tion (in):			
Weather at time of thi Temperature: ()	Sinspection? Clear Cool, OUERLAST	□ Fog □ Snow □ Windy T, LIGHT PAIN, HAS BEEN HOT.	XDRY LAST FON WEEPS			
	uge reading & flow rate at the weir located of Gauge Reading (feet)	at the Toe of East Mill Dump, above the sed responding Flow Rate (gallons per minute)	liment control structure (IA1-55):			
O.120 Staff	f Gauge Reading (feet) Corr	on? Wes ONo If yes, describe: DEC				
Is any water flowing t	hrough the spillway in the Sediment Contro	Ol Structure? Dies ONO If yes, describer RIPRAP AT THE SPILLWA				
PA1101-4 WADI		Sampling: Monthly (May-Oct.)				
Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.						
	Toe of East Mill Dump Cross Valley Fill (IA1-55)	Sediment Pond (IA1-28A)	East Mill Creek (IA1-30A)			
Sample Collected?	trYes □ No	12√Yes □ No	Yes • No			
1		ACCUMULATION OF SEDIMENT	•			
The second secon	ent Pond (Feet): 8,9 ON STAFF	C RECOVE DADY GREET WAY TO	22711/- 21568			
	FELT . WATER IN FOND HA	S BECOME DARK GREEN WITH F	CORILAGE PULLOTS.			

CANNOT SEE THE BOTTOM.

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

Monitoring: Once Per Month, After Storm Events ≥ 2.64" in 24 Hour Period (100-Year, 24-Hour Storm Event), and After Storm Events ≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour Storm Event) (May-Oct.)				
Location	BMP	BMP Functionality	BMP Functioning Properly?	Corrective Action Needed/Notes
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	ErYes □ No	
EMD Sediment Pond	Riprap below Culvert Outfalls	 ✓ Riprap is in-place (i.e., not washed away) ✓ No soil washed out from under riprap ✓ No diversion of runoff flow around riprap resulting in additional rill erosion 	ta Yes □ No	
EMD Sediment Pond	Riprap Energy Dissipater	 ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure remains unblocked 	t⊈Yes □ No	
EMD Sediment Pond	Sediment Control Structure	 ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, ✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure. ✓ Pore spaces within sediment control structure remains unblocked ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, 	□ No	

East Mill Creek Sediment Control Structure Site Inspection Form Page 3 of 3

Location	BMP	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
		✓ Riprap is in-place (i.e., not washed away)	₩ Yes	
EMD Toe	Riprap Toe Berm	✓ Type II geotextile is not being undercut beneath the sediment control structure	□ No	
		✓ Logs are in-place in rills (i.e., not washed away)	¥Yes	
EMD Rills	Erosion Controls	✓ Rills are not increasing in size (i.e., no additional erosion is occurring)	□ No	
Growth Media	D F#odot	/ No -!! dougle one on	12/Yes	
Borrow Area	Revegetation Efforts	✓ No rill development	□ No	N.
West Mill Dump Soil Consolidation	Revegetation Efforts*	✓ No rill development	□ □YYes	
Area Comments:			□ No	_
SITE	15 STABLE	AND FUNCTIONING AS DESIGN	UED.	
				'n
				•
				•
	getation is at 70% perm	anent cover under the "Corrective Action Needed/Notes	s" column.	
Document when ve	getation is at 70% perm		_	
	-		_	



Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure. No evidence of erosion was observed in these areas and the vegetation is abundant.



Photo taken looking southeast showing the logs in the rills on East Mill Dump and the riprap lined channel below the upper culvert. No evidence of erosion is present.



Photo taken looking south, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure. The area is in good condition with abundant vegetation.



Photo taken looking east, showing the riprap lined channel below the lower culvert and the clarity of the sediment control pond.



Photo taken looking north, showing the upper weir and the sediment control structure. No evidence of erosion is present and vegetation is well established along the channel.



This photo is the toe of the riprap energy dissipater. Riprap armor is holding up well.



Photo taken looking south, showing the riprap lined channel below the upper culvert outfall. No sign of erosion is present.



Photo taken looking south, showing the east side (west facing) slope of the graded area above the sediment control pond. Vegetation is well established on this slope with no signs of erosion occurring.



Photo taken looking west, showing the lower culvert outfall and clarity of the sediment control pond. Riprap armor below lower culvert outfall is doing a good job preventing scour and erosion.



Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure. The vegetation is very abundant and the area is in good condition.



Photo taken looking north, showing the lower weir and riprap lined channel below the sediment control structure. This area is in good condition with vigorous vegetation established on side-slopes.



Photo taken looking north, showing the riprap lined channel below the lower weir. This area is well vegetated and stable.



Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir.

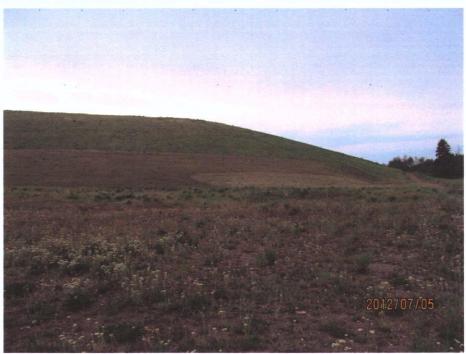


Photo taken looking south, showing the waste consolidation area. Vegetation has established and there is no sign of erosion.



Photo taken looking southeast, showing the waste consolidation area. Area shows no evidence of erosion with abundant vegetation.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion and vegetation becoming established.

INSPECTION FORMS AND PHOTOS AUGUST 6, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

	Gen	eral Information			
Inspector's Name:	JAMES B. WILLIAMS				
Date: AUGUST 06, 2012 Start Time: 1180					
Monthly Surface Water Sampling Event?: ☐Yes ☐ No					
Type of Monitoring: (Monthly) Dest-storm event					
If Yes - Storm Start Dat 07/05 13:08, 4	m event since the last inspection? Wes te & Time: Storm Duration (hrs): 4 HRS 51 MIN., 0.29 " 2 HRS 58 MIN., 0.68" 8 HRS 26 MIN., 0-11"	□No RAIN EVENTS ORFATER : Approximate Amount of Precipita			
Weather at time of this	s inspection? 🗹 Clear 🖫 Cloudy 🛭 Rain 🛭	•			
1	F Description: HOT, DRY, PAR	•	_ :		
	uge reading & flow rate at the weir located at f Gauge Reading (feet)		diment control structure (IA1-55):		
O 100 Staff Has the flow increase	Ige reading & flow rate at the weir located in Gauge Reading (feet) 3-6 Correct or decreased since the last site inspection BY 3.0 GPM AT FAI-55	esponding Flow Rate (gallons per minute)			
	hrough the spillway in the Sediment Control	,			
	DIBLE FLOW THROUGH COARS				
		ampling: Monthly (May-Oct.)	•		
Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.					
	Toe of East Mill Dump Cross Valley Fill (IA1-55)	Sediment Pond (IA1-28A)	East Mill Creek (IA1-30A)		
Sample Collected?	☑ Yes ☐ No	02rYes □ No	⊈Yes □ No		
Depth of Sediment at	Staff Gauge in Sediment Pond (Feet): NO	ACCUMULATION OF SEDIMENT			
	nt Pond (Feet): 8.9 ON STAFF				
Clarity (Feet): 2	FEET. WATER 15 GREEN	WITH FLOATING AND SUSPENCE	ED ORGANICS.		

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

мопполі		, After Storm Events ≥ 2.64" in 24 Hour Period (ents ≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour S	Storm Event) (May-Oc	t.)
Location	BMP	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	⊠Yes □ No	·
EMD Sediment Pond	Riprap below Culvert . Outfalls	 ✓ Riprap is in-place (i.e., not washed away) ✓ No soil washed out from under riprap ✓ No diversion of runoff flow around riprap resulting in additional rill erosion 	v Yes □ No	
EMD Sediment Pond	Riprap Energy Dissipater	 ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure remains unblocked 	©YYes □ No	
		 ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure 		
5MD Sadimant Bond	Sediment Control	 ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, 	Od Yes	·
EMD Sediment Pond	Structure	✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure.	□ No	
:		 ✓ Pore spaces within sediment control structure remains unblocked ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, if possible) 		

East Mill Creek Sediment Control Structure Site Inspection Form Page 3 of 3

Location	ВМР	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
		✓ Riprap is in-place (i.e., not washed away)	☑ Yes	
EMD Toe	Riprap Toe Berm	✓ Type II geotextile is not being undercut beneath the sediment control structure	□ No	
EMD Rills	Erosion Controls	✓ Logs are in-place in rills (i.e., not washed away)	₫ Yes	CROSION IN PLUS ABOUT ACCESS ROAD BUT NOT B
EMD Kills	Erosion Controis	✓ Rills are not increasing in size (i.e., no additional erosion is occurring)	□ No	THE ROAD AT THE TON
Growth Media Borrow Area	Revegetation Efforts*	✓ No nill development	∑ Yes □ No	
West Mill Dump Soil Consolidation Area	Revegetation Efforts*	✓ No rill development	☐ Yes	STORMWATER SHEET FU THIS AREA CONCENTRA CREATED A RILL WHERE
OMMENTS: THE STORM SEDIMENT CLEANING	TRAPS ALDI OUT THE R TO THE DITC	JULY 7 FILLED A NUMBER OF THE ACCESS ROAD ABOUT TOADS AND H. THE TURA AREA WAS NOT I	THE ROAD THE TURA. R REPAIRING	DOWN INTO THE HAUS DSIDE RECOMMEND ANY

* Document when veg	etation is at 70% permanent cover under the "Correcti	ve Action Needed/Notes" column.
Print Name & Title: _	JAMES B. WILLIAMS	End Time: 1300
Signature:	a-B. Willi	Date: <u>08/06/12</u>



Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure. No evidence of erosion was observed in these areas and the vegetation is abundant.

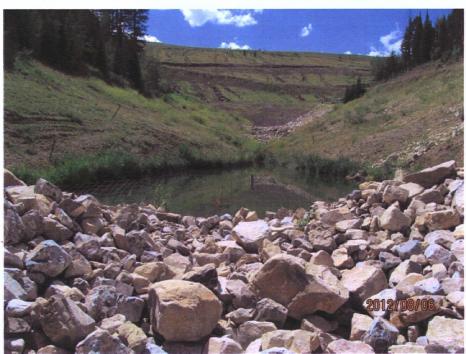


Photo taken looking south, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking east, showing the lower culvert outfall and the clarity of the sediment control pond.



Photo taken looking east, showing the vegetation cover on the east slope of the graded area above the sediment control pond.

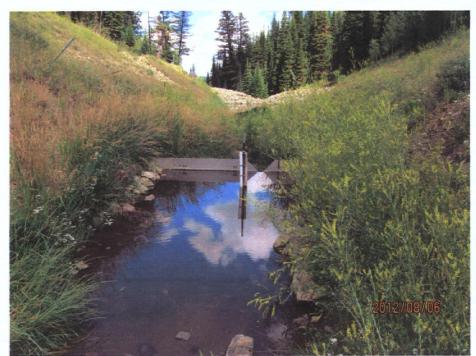
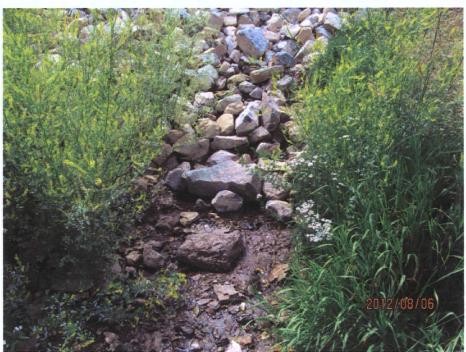


Photo taken looking north, showing the upper weir and the sediment control pond and structure. This photo shows great vegetation establishment and that the channel is in good condition.



This photo is the toe of the riprap energy dissipater. Riprap armor is holding up well.

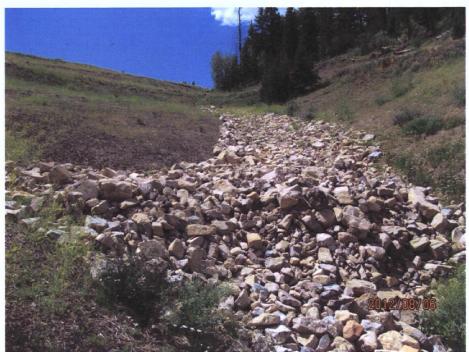


Photo taken looking south, showing the riprap lined channel below the upper culvert outfall. No sign of erosion is present.



Photo taken looking southeast showing the logs in the rills on East Mill Dump and the riprap lined channel below the upper culvert outfall. No evidence of erosion is present.



Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure.



Photo taken looking south, showing a close up of the lower weir and riprap lined channel below the sediment control structure. This area is in good condition with vigorous vegetation established on side-slopes.

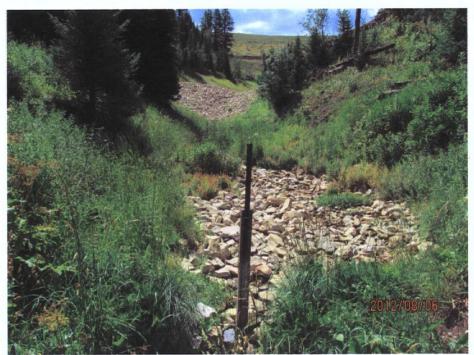


Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir.



Photo taken looking north, showing the riprap lined channel below lower weir. This area is stable with a good establishment of vegetation.



Photo taken looking south, showing the waste consolidation area. Vegetation has established.

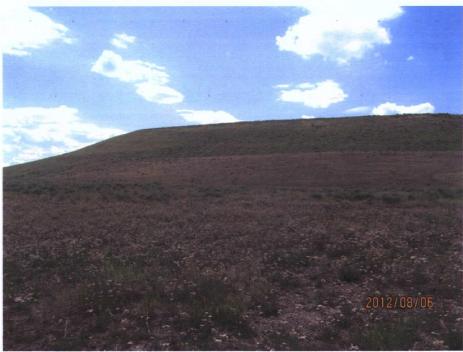


Photo taken looking southeast, showing the waste consolidation area.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion and vegetation becoming established.



Photo taken looking south, showing an erosion rill that formed from water running off the area below the waste consolidation area.

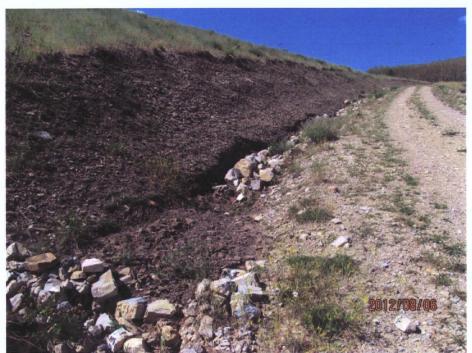


Photo taken looking west, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the middle portion of the access road – along the north end of the North Maybe Pit. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the lower portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking west, showing the lower portion of the access road. Ditch experienced some minor erosion and scouring from a recent storm event.



Photo taken looking west, showing the lower portion of the access road. Road and ditch are in good condition with no signs of erosion.

INSPECTION FORMS AND PHOTOS SEPTEMBER 4, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

General Information
Inspector's Name: JAMES B. WILLIAMS
Date: SEPTEMBER 04, 2012 \$ Start Time: 1030
Monthly Surface Water Sampling Event?: ☑Yes ☐ No
Type of Monitoring: Regular (Monthly)
Has there been a storm event since the last inspection? The DNE STORM OVER 0-10" If Yes - Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in): 09/01/12 12:00 Am, 2 Hrs 47 min, 0.17"
Weather at time of this inspection? ☑ Clear □Cloudy □ Rain □ Fog □ Snow □ Windy Temperature: ☐ ☐ ☐ Description: WARM, DRY, CLEAR, BREEZY DAY
Approximate staff gauge reading & flow rate at the weir located at the Toe of East Mill Dump, above the sediment control structure (IA1-55):
Approximate staff gauge reading & flow rate at the weir located in East Mill Creek at toe of sediment control structure (IA1-30A):
Curfore Wester Compliant Monthly (May Oct.)
Surface Water Sampling: Monthly (May-Oct.) Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.
Toe of East Mill Dump Cross Valley Fill (IA1-35) Sediment Pond East Mill Creek (IA1-30A) (IA1-30A)
Sample Collected? 12 Yes No 12 Yes No
Depth of Sediment at Staff Gauge in Sediment Pond (Feet): NO APPARENT ACCUMULATION OF SEDIMENT. Water level in Sediment Pond (Feet): 8.75 ON STAFF (DIFFICULT TO READ DUE TO ALGAE ON STAFF) Clarity (Feet): ABOUT 2 FEET - WATER HAS A GREEN HUE.

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

Location	BMP	BMP Functionality	BMP Functioning Properly?	Corrective Action Needed/Notes
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	Yes No	
EMD Sediment Pond	Riprap below Culvert Outfalls	✓ No diversion of runoff flow around riprap resulting	© Yes □ No	
EMD-Sediment Pond	Riprap Energy Dissipater	in additional rill erosion ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure remains unblocked	Yes D No	
EMD Sediment Pond	Sediment Control Structure	 ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, ✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure. 	☑ Yes	
:	·	 ✓ Pore spaces within sediment control structure remains unblocked ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, if possible) 		•

East Mill Creek Sediment Control Structure Site Inspection Form

		BMP Functionality	Properly?	Corrective Action Needed/Notes
:	v	✓ Riprap is in-place (i.e., not washed away)	☑ Yes	
EMD Toe	Riprap Toe Berm	✓ Type II geotextile is not being undercut beneath the sediment control structure	□ No	
	-	✓ Logs are in-place in rills (i.e., not washed away)	12 Yes	
EMD Rills Erosion Controls	Erosion Controls	 ✓ Rills are not increasing in size (i.e., no additional erosion is occurring) 	□ No	
Growth Media Borrow Area	Revegetation Efforts*	✓ No rill development	☑ Yes	
West Mill Dump Soil Consolidation Area	Revegetation Efforts*	✓ No rill development	☐ Yes	(AUGUST) INSPERTION RE IN THE SAME CONDITION,
omments:				GO-AHEAD APPROVAL FROM NU-WEST TO CONDUCT T MAINTEN ANCE AT THIS
AS NOTED	IN AUGUST	INSPECTION, ROADSIDE SEDMEN	OF TRAOS	
NEED CLEA	WED OUT.	NO APPROVAL AT THIS TIME. DRY RIDGE CORE BRILLING PROGRAM DWN YARD EWATER STORAGE AREX		

Note; * Document when veg	etation is at 70% permanent cover under the "Correctiv	ve Action Needed/Notes" column.
Print Name & Title: _	JAMES B. WILLIAMS	End Time: 1215
Signature:	mB. Willi	Date: 09/04/12

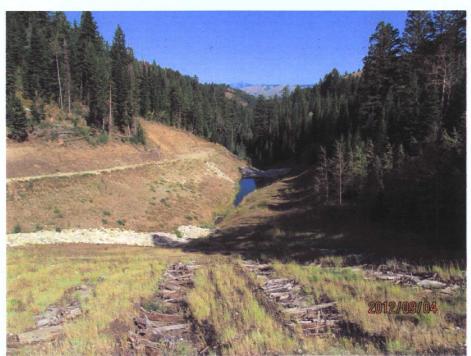


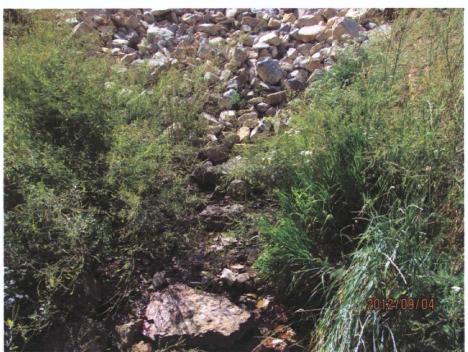
Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking south, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking north, showing the upper weir and the sediment control pond and structure. This photo shows the vegetation is well established and that the channel is in good condition.



This photo is the toe of the riprap energy dissipater. Riprap armor is holding up well and there is abundant vegetation.

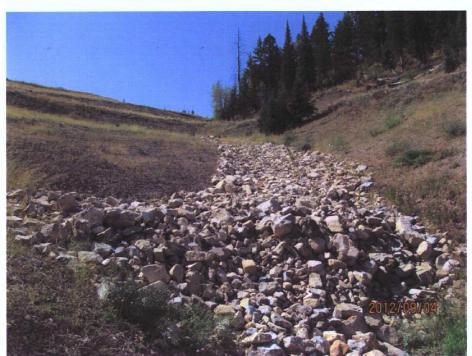


Photo taken looking south, showing the riprap lined channel below the upper culvert outfall. No sign of erosion is present.



Photo taken looking east, showing the lower culvert outfall riprap lined channel and the clarity of the sediment pond.



Photo taken looking southeast showing the logs in the rills on East Mill Dump and the riprap lined channel below the upper culvert outfall. No evidence of erosion is present.



Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure.



Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir. Abundant vegetation has established and this area is in good condition.



Photo taken looking south, showing the riprap lined channel below the sediment control structure and a close-up of the lower weir. Abundant vegetation has established and this area is in good condition.



Photo taken looking south, showing the waste consolidation area. The area at the toe of the waste consolidation area is being utilized by the North Dry Ridge exploration drilling crews.

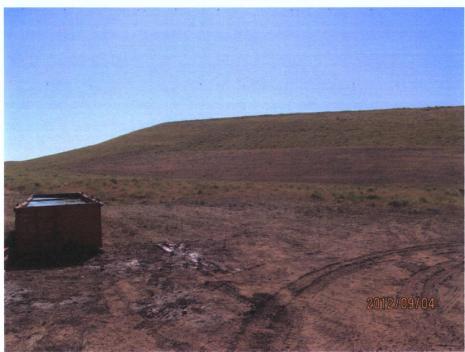


Photo taken looking southeast, showing the waste consolidation area. The area at the toe of the waste consolidation area is being utilized by the North Dry Ridge exploration drilling crews.

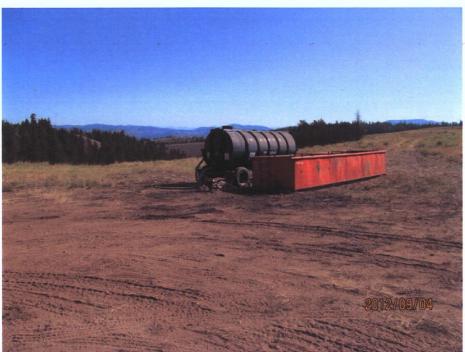


Photo taken looking east, showing the equipment staging area. The area at the toe of the waste consolidation area is being utilized by the North Dry Ridge exploration drilling crews.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion and vegetation becoming established.

INSPECTION FORMS AND PHOTOS
OCTOBER 1, 2012

East Mill Creek Sediment Control Structure Site Inspection Form Page 1 of 3

General Information				
Inspector's Name:	JAMES B. WILLIAMS			
Date: OCTOBER	2 01, 2012	Start Time: 1215		
Monthly Surface Water	er Sampling Event?: Yes No			
Type of Monitoring:	Regular (Monthly)			
If Yes - Storm Start Dat		Approximate Amount of Precipitar		
Weather at time of this Temperature: (2)	Sinspection? □ Clear □ Cloudy □ Rain Description: CLEAR, SUNNY	Fog Snow Windy WARM, SLIGHT MOUNTAIN BREE	EZE,	
	uge reading & flow rate at the weir located f Gauge Reading (feet) Con	at the Toe of East Mill Dump, above the sec responding Flow Rate (gallons per minute)	liment control structure (IA1-55):	
0.075 Staff	f Gauge Reading (feet) Con		ol structure (IA1-30A):	
,	d or decreased since the last site inspection	on? ☑Yes □No If yes, describe: FASED BY D.D3 O.3 GPM AT I	A1-30A	
· · · · · · · · · · · · · · · · · · ·	,	ol Structure?		
	Surface Water	Sampling: Monthly (May-Oct.)		
Note, if samples are collected attach a copy of the completed "Field Water Quality Sampling Form" to this Inspection Form for each sample location. These forms can be found in the 2009 Groundwater and Surface Water Sampling Work Plan for North Maybe Mine.				
	Toe of East Mill Dump Cross Valley Fill (IA1-55)	Sediment Pond (IA1-28A)	East Mill Creek (IA1-30A)	
Sample Collected?	ØYes □ No	E Yes □ No	☐Yes ☐ No	
Depth of Sediment at	Staff Gauge in Sediment Pond (Feet): No	APPARENT ACCOMULATION OF S	EDIMENT.	
		FF (DIFFICULT TO READ DUE TO		
Clarity (Feet): ABOUT 1.5 FT. WATER HAS A BRIGHT GREEN ORGANIC HUE.				

East Mill Creek Sediment Control Structure Site Inspection Form Page 2 of 3

monitori	Monitoring: Once Per Month, After Storm Events≥ 2.64" in 24 Hour Period (100-Year, 24-Hour Storm Event), and After Storm Events≥ 0.8" in a 1 Hour Period (25-Year, 1-Hour Storm Event) (May-Oct.)					
Location	ВМР	BMP Functionality	BMP Functioning Properly?	Corrective Action Needed/Notes		
EMD Sediment Pond	Graded Area Revegetation Efforts*	✓ No rill development	☑ Yes			
EMD Sediment Pond	Riprap below Culvert Outfalls	 ✓ Riprap is in-place (i.e., not washed away) ✓ No soil washed out from under riprap ✓ No diversion of runoff flow around riprap resulting 	¥2 Yes □ No			
EMD Sediment Pond	Rìprap Energy Dissipater	in additional rill erosion ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure ✓ Pore spaces within sediment control structure	☑ Yes			
	; ; ,	remains unblocked ✓ Depth of sediment at staff gauge in the sediment pond is less than 7.0 feet ✓ Riprap is in-place (i.e., not washed away) ✓ Type II geotextile is not being undercut beneath the sediment control structure		PULLED A SMALL WOODY PLANT GROWN UP THROUGH RIPRI OF SED CONTROL		
EMD Sediment Pond	Sediment Control	 ✓ Soil is in-place (i.e., not washed away) ✓ No animal burrow holes or tree growth ✓ No washing away of the soil used to construct the sediment control structure, 	₩ Yes	STRUCTURE.		
	Structure	 ✓ No erosion of the upper reach of East Mill Creek caused by water flowing over the spillway and down the face of the sediment control structure. ✓ Pore spaces within sediment control structure remains unblocked 	□ No			
		 ✓ No erosion on the downstream side where seep occurs at the toe of the sediment control structure (note turbidity of seep water, and flow rate of seep, if possible) 				

East Mill Creek Sediment Control Structure Site Inspection Form Page 3 of 3

Location	ВМР	BMP Functionality	BMP Functioning Property?	Corrective Action Needed/Notes
EMD Toe	Riprap Toe Berm	 Riprap is in-place (i.e., not washed away) Type II geotextile is not being undercut beneath the sediment control structure 	¥ Yes □ No	
EMD Rills	Erosion Controls	Logs are in-place in rills (i.e., not washed away) Rills are not increasing in size (i.e., no additional erosion is occurring)	¥ Yes □ No	
Growth Media Borrow Area	Revegetation Efforts*	√ No rill development	☑ Yes	
West Mill Dump Soil Consolidation Area	Revegetation Efforts*	No rill development	☐ Yes	ITEM DESCRIBED IN PARE (AUGUST) INSPECTION RET IN THE SAME CONDITION
AS previou	SLY NOTED (AUG	-& SEPT INSPECTIONS), NO FORMAL DE SEDIMENT TRAPS AT THIS TIME	. Approure DE	FORMAL GO-AHEAD APPLIED TO CONDUCT THIS MADE AT THIS TIME.
UTILIZING	- THE WEST	DRY RIDGE (NDR) MINE PERMITTIN MILL BUMP SOIL CONSOLODATION AT		
LAY - DOWN	AND PARKING	RIVEN.		

Print Name & Title: JAMES B. WILLIAMS - INSPECTOR End Time: 1415

Signature: JAMES B. WILLIAMS - INSPECTOR Date: 10/01/12



Photo taken looking north, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking south, showing the graded area surrounding the sediment pond, riprap below culvert outfalls, riprap energy dissipater, riprap toe berm, logs placed in rills on East Mill Dump and the sediment control structure.



Photo taken looking north, showing the upper weir and the sediment control pond and structure. This photo shows vegetation establishment and that the channel is in good condition.



This photo is the toe of the riprap energy dissipater. Riprap armor is holding up well.

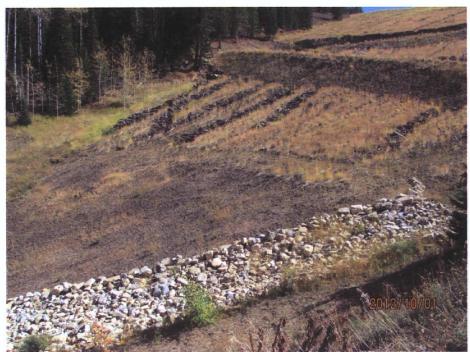


Photo taken looking southeast, showing the riprap lined channel below the upper culvert outfall and logs in Rills on East Mill Dump. No sign of erosion is present.



Photo taken looking east, showing the lower culvert riprap lined outfall and clarity of the sediment control pond.

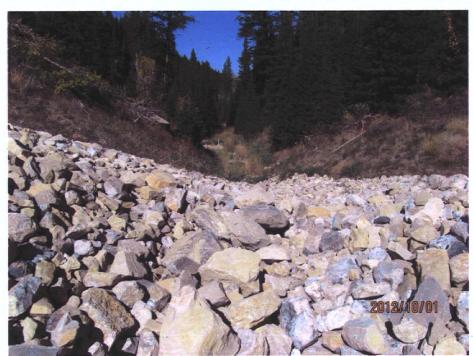


Photo taken looking north, from the top of the sediment control structure showing the lower weir and riprap lined channel below the sediment control structure.



Photo taken looking north, showing a close up of the lower weir and riprap lined channel below the sediment control structure. This area is in good condition with vigorous vegetation established on side-slopes.

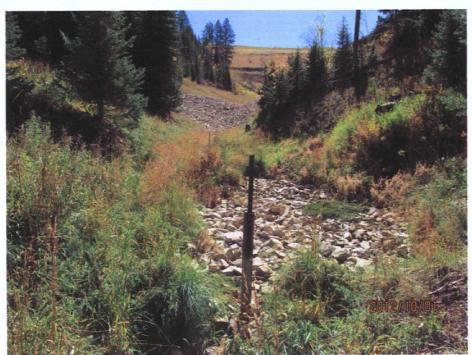


Photo taken looking south, showing the riprap lined channel below the sediment control structure and the lower weir.



Photo taken looking south, showing the waste consolidation area. The area at the toe of the waste consolidation area is being utilized by the North Dry Ridge exploration drilling crews.



Photo taken looking southeast, showing the waste consolidation area. The area at the toe of the waste consolidation area is being utilized by the North Dry Ridge exploration drilling crews.



Photo taken looking west, showing the growth media borrow area located at the north end of the pit. This area is holding up well showing no signs of erosion and vegetation becoming established.

APPENDIX B
CORRECTIVE ACTION LOGS AND PHOTOS

Corrective Action Log for the Restored North Maybe Mine East Mill Creek Sediment Control Structure

Inspection Date	Inspector Name(s)	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	
08/06/12	JAMES B- WILLIAMS	STORMWATER FROM A RAIN EVENT CANSED AN EROSION RILL TO FORM ON THE	NEED TO ROCK ARMOR THE ENOSION RILL THAT FORMED ON THE ACCESS ROAD CUT.	10/22/12 -10/29/12 VAUGHN SMITH
		HAULROAD CUT BELOW THE WEST MILL DUMP. WASTE CONSOLODATION AREA.	NEED TO BOLSTER THE POCK. ARMOR RIP RAP ALONG THE DITCH OF THE ACCESS ROAD.	CONSTRUCTION
		THE WATER SUBSEQUENTLY CAUSED SCOURING ALONG THE ACCESS ROAD DITCH	NEED TO CLEAN OUT ALL THE SEDIMENT TRAPS ALONG THE ACCESS POAD DITCH TO	
		AND FILLED OR PARTIALLY FILLED THE SECUMENT THE WITHIN THE DITCH.		
		THE STORM WATER DIVERTED INTO THE NORTH MAYBE PIT AS DESIGNED. STORMWATER	†)
		EFFECTS BELOW THE PIT WHE MUCH LESS.)	
7			HAND SEEDED & FENTILIZED ALL ANDAS OF DISTURBANCE WITH REGARD TO CORRECTIVE ACTIONS	11/2/12 VAMES B. WILLIAM
		, ,		
	<u> </u>			·

NORTH MAYBE MINE TCRA CORRECTIVE ACTION LOG PHOTOS FROM 2012



Photo taken looking south, showing an erosion rill that formed from water running off the area below the waste consolidation area.



Photo taken looking south, showing the repaired erosion rill that formed from water running off the area below the waste consolidation area.



Photo taken looking east, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the upper portion of the access road. Ditch was repaired by adding riprap armor and cleaning out the sediment traps.



Photo taken looking west, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking west, showing the upper portion of the access road. Ditch was repaired by adding riprap armor and cleaning out the sediment traps.



Photo taken looking east, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the upper portion of the access road. Ditch was repaired by adding riprap armor and cleaning out the sediment traps.



Photo taken looking east, showing the upper portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the upper portion of the access road. Ditch was repaired by adding riprap armor and cleaning out the sediment traps.

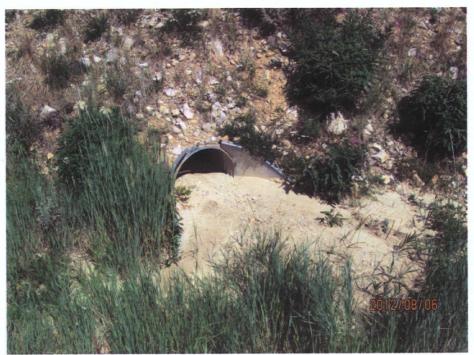


Photo showing an access road culvert partially filled with sediment from a recent storm event.



Photo showing the same culvert cleaned out with a rock armored flow line established.



Photo taken looking east, showing the middle portion of the access road along the North Maybe Pit endwall. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the middle portion of the access road along the North Maybe Pit endwall. Ditch was repaired by cutting and cleaning out the flow line.



Photo taken looking east, showing the lower portion of the access road. Ditch experienced some erosion and scouring from a recent storm event.



Photo taken looking east, showing the lower portion of the access road. Ditch was repaired by adding riprap armor and cleaning out the sediment traps.



Photo taken looking east. Interceptor ditch on north face of East Mill Dump was cleaned and regraded to divert stormwater flow into the pit (no before photo).



Photo taken looking west. Interceptor ditch on north face of East Mill Dump was cleaned and regraded to divert stormwater flow into the pit (no before photo).

APPENDIX C

FIELD FORMS MAY 2, 2012

Project:	North May	be Mine	Personnel:	JB Brown	(J Williams) J Skinner
	TCR	A		M Hart		
	Instruments:		Date	and Time In	strument Ca	librated
Conductivity,			/	1	.	
pH, Eh, DO	YSI 556		05/0	2112	1300)
Temperature	YSI 556					
Turbidity	Hach 2100					
			GENERAL	·		
Date: MA	1 02, 20	12	Location:	TA 1-30	A	Circle:
Time: 14			Lat.		Long.	
		SAMPLI	NG CONDIT	IONS		
Sampling Method: 6 MB			Depth Sample Taken: SW			
Water Level BTC (ft):			Well Depth	BTC (ft):		
Water Appear	ance: CLE	HR-NO	ODOR	-		
Stream Flow:	STAFF =	0.37	= 95 Gem	^		
		FIELD M	EASUREME	INTS		
Temperature (°C)	Conductivity (uS/cm)	Hq Jaw	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
8.12	396		277.6	78.7	9.30	1.25
		7.94	170.5			
		SAMPLI	S COLLEC	TED		·
General Indica	itors & Anions					
Metals & Cations - Nitric Acid Preserved			:	(F	Raw / Filter	9
Total Suspended Solids - Unpreserved:				Raw / Filtered		
Organics - Unpreserved:				Raw / Filtered		
	furic Acid Pres	erved:			Raw / Filtere	

Sampler's Signature from B, Will Date: 05/02/12

BLIND DUP HERE! DUP-050212-A @1330

Project:	North May		Personnel:		Williams	Skinner	
	TCR	Α		M Hart			
	Instruments:		Date a	and Time In	strument Ca	librated	
Conductivity, pH, Eh, DO	YSI 556		05/	02/12	1300)	
				1	,		
Temperature	YSI 556		<i> </i>				
Turbidity	Hach 2100	·			/		
			SENERAL				
Date: MAy	1 02, 201	2	Location: 3	LA1-28	A	Circle:	
Time: 142			Lat.		Long.		
7 (5		SAMPLII	NG CONDIT	IONS			
<u> </u>					···	-	
Sampling Met	nod: GRAB		Depth Sample Taken: SW				
Water Level B	TC (ft):		Well Depth	BTC (ft):		· 	
Water Appeara	ance: CLEA	R- NO	ODOR	-			
	NOT ME						
			EASUREME	NTS			
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
8.41	399	7.30	170.6	80.0	9.35	0.94	
<u> </u>							
	L	04115: 5	50.0011.50	<u></u>	<u></u>		
			ES COLLEC				
General Indicators & Anions - Unpreserv					Raw / Filtere		
Metals & Cations - Nitric Acid Preserved			:		Raw / Filtere		
	led Solids - Un	preserved:			Raw / Filtered		
Organics - Un				Raw / Filtered			
Organics - Sul	furic Acid Pres	erved:		<u> </u>	Raw / Filtere	ed	

Sampler's Signature from B. Willing Date: 05/02/12

	· · · · · · · · · · · · · · · · · · ·				$\overline{}$			
Project:	North May TCR		Personnel:	JB Brown (M Hart	J Williams	J Skinner		
	Instruments:		Date a	Date and Time Instrument Calibrated				
Conductivity, pH, Eh, DO	YSI 556		05/0	12/12 7300				
Temperature	YSI 556			/				
Turbidity	Hach 2100		/		1			
			SENERAL					
Date: MA	402,20	012	Location: TA1-55 SW GW					
Time: /4	145		Lat.		Long.			
	SAMPLING CONDITIONS							
Sampling Method: GRAB D			Depth Sample Taken: 5W					
Water Level B	TC (ft):		Well Depth	BTC (ft):				
Water Appear	ance: CLE	AR-NO	ODOR	- -				
Stream Flow:	STAFF	= 0.42	5 -13	4 Gpm	· .			
			EASUREME	NTS				
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)		
6.39	381	6.63	191.2	75.6	9.30	1.13		
						-		
		SAMPLE	S COLLEC	TED				
General Indicators & Anions - Unpreserv			red:	R	aw / Filtere	ed		
Metals & Cations - Nitric Acid Preserved			•	(R	law Filtere	M >		
Total Suspend	ed Solids - Unj	preserved:		R	Raw / Filtered			
Organics - Un				Raw / Filtered				
Organics - Sul	furic Acid Pres	erved:		Raw / Filtered				

B, Will Date: 05/02/12

Sampler's Signature_

MAY 02, 2012 MONTHLY TORA SAMPLING 2 CALIBRATE VSI 556 MULTI

1300 CALIBRATE YSI 556 MULTI-METER

THE FOLLOWING STANDARDS:

PH 7.0, GEOTECH, COT # 2AA510, EXP. JAN/2 PH 10.0, "LOT # 2AB 648, EXP. FEB/14 COUD 1413, "COT # 2AB308, EXP. FEB/13 ORP 220, "COT # 2AB017, EXP. NOV/12 CALIBRATE DO AS PER EQUIPMENT

MANUFACTURERS INSTRUCTIONS.
BUMB TEST HACH 2000 TUR

BUMA TEST HACH 2:00 TURBIDITY METER 6.64 NTU READS 6.67 57.9 " 59.0 533 " 535

1345 AMRIVE AT SITE. COOL, WINDY, FEW THIN CLOUDS, ALGER. A WHITE FORD PICKUP WITH UTAH PLATES - ENTERPRIZE RENTAL IS PARKED AT THE TORA- ASSUME IT IS ESE SAMPLE CREW.

1405 IAI- 30A COLLECT SAMPLE AND BLIND DUP HERE STAFF AT WE'R READS 0.37'

1425 IAI-28A COLLECT SAMPLE AT SED CONTREL POND STAFF IN POND READS 9.17

1445 IAI-55 COLLECT SAMPLE. STAFF AT WEIR READS 0 425'

1455 CONDUCT SITE INSPECTION. TALKED TO JOHN WITH ERE - THEY ARE SAMPLING IN EAST MILL CREEK TODAY.

1545 PREPARE SAMPLES, COC, FOR SHIPMENT

for BWill

FIELD FORMS JUNE 5, 2012

Project:	North May TCR		Personnel: JB Brown J Williams J Skinner M Hart) J Skinner
	Instruments:	······································	Date		strument Ca	librated
Conductivity, pH, Eh, DO	YSI 556		06/05/12 1100			
Temperature	YSI 556			/ -		,
Turbidity	Hach 2100	· · · · · · · · · · · · · · · · · · ·		/ <u>;</u>		
			SENERAL	<u>_</u>		T
Date: JUN	JE 05, 20	12	Location:	IA1-30	4 (Circle:
Time: (3	05	0.11.51.11	Lat.	10110	Long.	
		SAMPLII	NG CONDIT	IONS		
Sampling Met	hod: GRAB	, _, _ ,	Depth Sam	ple Taken:	SW	
Water Level B	TC (ft):	· .	Well Depth	BTC (ft):	·	
Water Appear	ance: CLEAR	2 , NO	ODOR	- -		
Stream Flow:	STAFE 1	ZEADS (011851	= 17 69	<u>~</u>	
		FIELD M	EASUREME	NTS	·	
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
11.57	551	6.89	156.7	90.4	9.83	1-13
				<u> </u>		
		SAMPLE	S COLLEC	TED		
General Indica	tors & Anions -	- Unpreserv	red:	F	law / Filtere	ed
Metals & Catio	ons - Nitric Acid	Preserved	:	(F	aw P Eilter	
Total Suspend	led Solids - Un	preserved:		Raw / Filtered		
Organics - Un				Raw / Filtered		
Organics - Sul		erved:		Raw / Filtered		

Sampler's Signature fam B. Willi Date: 06/05/02

Oralasti	North Mari	ha Mina	Doronali	ID Drawn	1 VAGILIANA) Claiman	
Project:	North May	be Mine KA	Personnei:	M Hart	J Williams) Skinner	
	Instruments:	<u> </u>	Date and Time Instrument Calibrated				
Conductivity,	1		1				
pH, Eh, DO	YSI 556		06/0	5/12	1100		
Temperature	YSI 556		',		/		
Turbidity	Hach 2100		7		7		
Turblany	1.140.1.2.100		GENERAL			·	
Date: しへ	E 05, 2	212	Location:	IA1-28	3A .	Circle:	
Time: 131			Lat.		Long.		
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GRAB			Depth Sample Taken: SW				
Water Level B	TC (ft):	-	Well Depth	BTC (ft):		· · · · · · · · · · · · · · · · · · ·	
Water Appear	ance: CLEM	2, NO 01	oor, Abu	NDANT A	QUATIC 1	1FE	
Stream Flow:							
		FIELD M	EASUREME	NTS			
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
13.15	578	7.56	-200.7	132.14	13.86	1.95	
		SAMPLI	ES COLLEC	TED	L	L	
General Indica		<u> </u>					
Metals & Catio	ons - Nitric Acid	Preserved	:	Œ	aw Eiltere	ad>	
Total Suspend	led Solids - Un	preserved:		Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
Organics - Sul	furic Acid Pres	erved:		Raw / Filtered			

Sampler's Signature_

B. Will Date: 06/05/12

BLIND DUP DUP-060512-A @ 1245

			,				
Project:	North May		Personnel:	nnel: JB Brown J Williams J Skinner			
	TCF	KA	D.1.	M Hart		121	
	Instruments:		Date	Date and Time Instrument Calibrated			
Conductivity, pH, Eh, DO	YSI 556		06/05/12 1100				
Temperature	YSI 556		/	•	/		
Turbidity	Hach 2100		1		1		
	<u> </u>		ENERAL		· · · · · · · · · · · · · · · · · · ·		
Date: しん	E 05,20		Location: 3	FA1-55	-	Circle:	
Time: 1340			Lat.	·	Long.	·	
	SAMPLING CONDITIONS						
Sampling Method: GRAB Der			Depth Sample Taken: Sw				
			Well Depth BTC (ft):				
Water Appear	ance: CLEAR	NO	OPOR			-	
Stream Flow:	STAFF	READS	0.240	= 32 61	m		
			EASUREME				
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
6.93	501	6.69	130.5	75.7	9.20	0,54	
						i	
					·		
		SAMPLE	S COLLEC	TED			
General Indicators & Anions - Unpreserve			ed:	F	Raw / Filtere	ed	
Metals & Cations - Nitric Acid Preserved:				<i>F</i>	(aw)/ Filtere	ed>)	
Total Suspend	Total Suspended Solids - Unpreserved:			Raw / Filtered			
Organics - Unr	oreserved:	·		Raw / Filtered			
Organics - Sul	furic Acid Pres	Organics - Sulfuric Acid Preserved:			Raw / Filtered		

Sampler's Signature__

Jam B. Willi

Date: 06/05/12

UNE 05, 2012 MONTHLY TERA SAMPLING 1100 CALIBRATE YSI 556 MULTI-METER TO THE FOLLOWING STANDARDS: PH 7,0, GEOTECH, LUT # ZAASIO, EXP. JAN/14 PH 10.0, 1 LOT # 2ABG48 EXP FEB/14 COND 1413, LOT # ZAB358, EXP. FEB (13 OPP 220. , LOT # 2ABOIT, EXP. NOV/12 CALIBRATE DO AS PER EQUIPMENT MANUFACTURERS INSTRUCTIONS BUMP TEST HACH 2100 TURBIOITY METER; 6.05 NTU READS 6.24 57.3 538 538 1230 ARRIVE AT SITE, SUNNY, WARM, SLIGHT BREEZE, 590F 1305 TAI-304 COLLECT SAMPLE AT LOWER WEIR STAFF GUAGE READS, 0.185" 1320 IAI-284 COLLECT SAMPLE IN SED CONTROL POND. STAFF IN POND READS: 8.95 BUND DUP HERE: DUP OGOSIR-A @1245 1340 IAI-55 COLLECT SAMPLE AT UPLER WEIR. STAFF GUAGE READS: 0.240 1350 CONDUCT SITE INSPECTION. PRÉP SAMPLES, COC, FOR SHIPMENT TO 1430 PACE.

for 8. Willi

FIELD FORMS
JULY 5, 2012

Project:	North May TCR		Personnel:	rsonnel: JB Brown J Williams J Skinner M Hart		
	Instruments:		Date a	and Time In:	strument Ca	librated
Conductivity, pH, Eh, DO	YSI 556		0-	7/05/17	<u> </u>	30
Temperature	YSI 556					
Turbidity	Hach 2100			l		
			ENERAL	···		
Date: し	Ly 05,	2012	Location:	TA1-30	A	Circle:
Time: 1045 Lat. Long. SAMPLING CONDITIONS						
ļ		SAMPLII	NG CONDIT	IONS		
Sampling Method: GMAB Dept			Depth Sam	Depth Sample Taken: SW		
Water Level B	TC (ft):	·	Well Depth BTC (ft):			
Wa ter Appear	ance: CUEA	n, NO	ODOR,	cow pr	ow	
Stream Flow:	0.120 0	N STAI	== = 5;	16PM	· .	
		FIELD M	EASUREME	NTS		
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
11,97	594	6.55	249.3	69.2	7.42	1.79
						-
		SAMPLI	S COLLEC	TED		
General Indicators & Anions - Unpresen			red:	2 6	aw/ Filtere	ed
Metals & Cations - Nitric Acid Preserved			•	Raw / (Filtered)		
Total Suspend	led Solids - Unj	preserved:		Raw / Filtered		
Organics - Un	preserved:			Raw / Filtered		
	furic Acid Pres	erved:		Raw / Filtered		

Sampler's Signature Jun B. Will Date: 07/05/12

Project:	North Mayl TCR		Personnel: JB Brown J Williams J Skinner M Hart				
	Instruments:		Date a	and Time Ins	trument Cal	ibrated	
Conductivity,	YSI 556		07/05/12 0930				
Temperature	YSI 556		1	/			
Turbidity	Hach 2100						
		(SENERAL			1 0:1	
Date: JUL-	05,20	12	Location:	TA1-28	4	Circle: SW GW	
Time: 10	55	Lat.		Long.			
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GPAB			Depth Sample Taken: 5W				
Water Level B	TC (ft):		Well Depth	BTC (ft):	·		
Water Appear	ance: CLEAR	NO ODOR	, FLOAT	ING ORGI	ANICS & D	EBRIS	
Stream Flow:	POND - NO	OT ME	ASURED				
		FIELD M	EASUREME	NTS	· · · · · · · · · · · · · · · · · · ·		
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
13.94	605	8.47	158.9	174.5	17.83	3.39	
		SAMPLI	S COLLEC	TED			
General Indicators & Anions - Unpresen			/ed:	2 (
Metals & Cations - Nitric Acid Preserved			(F	aw/ Filter	ed)		
Total Suspended Solids - Unpreserved:				R	Raw / Filtered		
Organics - Unpreserved:				Raw / Filtered			
Organics - Sul		erved:		Raw / Filtered			

Sampler's Signature fam. B. Willi Date: 07/05/12

Project:	North Mayl TCR		Personnel: JB Brown J Williams J Skinner M Hart				
	Instruments:	<u> </u>	Date and Time Instrument Calibrated				
Conductivity, pH, Eh, DO	YSI 556		07	105/12	093	30	
Temperature	YSI 556						
Turbidity	Hach 2100		SENERAL		· /		
ļ			SENERAL_	·		Gircle:	
Date: しい	4 05, 20	2	Location:	TA1-53	5	SW GW	
Time: []	15		Lat.		Long.		
		SAMPLI	NG CONDIT	IONS	·		
Sampling Method: GRAB			Depth Sample Taken: SW				
Water Level B	TC (ft):	· 	Well Depth BTC (ft):				
Water Appear	ance: CLE	tr No	ODOR	Low	FLOW	·	
Stream Flow:	STARP 1	PEADS	0,195	= 14 60m	٨		
	· · · · · · · · · · · · · · · · · · ·	FIELD M	EASUREME	NTS			
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
7,06	542	7.04	191.2	71.8	8.68	1.46	
		SAMPLE	S COLLEC				
General Indicators & Anions - Unpresent			red:	2 (F	2 Raw / Filtered		
Metals & Cations - Nitric Acid Preserved			:		law Eilter		
Total Suspended Solids - Unpreserved:				Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
Organics - Sul	furic Acid Pres	erved:		Raw / Filtered			

Sampler's Signature 3. Will Date: 07/05

BLIND BUP HERE Dup-070512-A

JULY 05, 2012 MONTHLY TORA SAMPLING 0930 CALIBRATE YSI 556 MULTI- METER FOLLOWING STANDARDS; PH 7.0, GESTECH, LOT# 2AA 510, EXP. JAN , LOT# 2ABG48, EXP. FEB LOT# 248388, EXP. FEST COND1413, ORP 220, LOT# ZABOIT, EXP. NOV/12 CALIBRATE DO AS PER EQUIPMENT MANUEL INSTRUCTIONS. Bump TEST HACH ZLOO TURBIDITY METER 6.05 NTU READS 6.12 57.3 538 ' 541 1030 ARMUE AT SITE, COOL, OVERLAST, LIGHT RIAD CALM. 610 F 1045 TAI-30A COLLECT SAMPLE AT LOWERWEIR STAFF READS: 0.120' 1055 TAI-28A COLLECT SAMPLE AT SED POND. STAFF IN POND RENDS 8.9" 1115 TAI-55 COLLECT SAMPLE AT TOE OF ENGREY DISSIPATOR (UPPER WEIR) STAFF READS 0.195' COLLECT BLIND DUP HERE: DUP-070512-A @ 1130. 1120 CONDUCT SITE INSPECTION 1145 PREP SAMPLES, COC, FOR SHIPMENT 70 PACE LABORATORIES.

> Am B. Willi 07/05/12

FIELD FORMS AUGUST 6, 2012

	· · · · · · · · · · · · · · · · · · ·	 -	 				
Project:	North May		Personnel:	el: JB Brown (J Williams) J Skinner			
	TCR	<u> </u>	M Hart Date and Time Instrument Calibrated				
	Instruments:		Date	and Time In	strument Ca	librated	
Conductivity,	1,01,550		006	-1.0	(2)	-	
pH, Eh, DO	YSI 556		0810	6/12	1015		
Temperature	YSI 556						
Turbidity	Hach 2100	·		/ . 	<i>,</i>		
			SENERAL	·			
Date: AU60	JST 06, 20	012	Location:	TA1-30	A	Circle:	
Time: // 3	15		Lat.		Long.		
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GRAS			Depth Sample Taken: ろい				
Water Level BTC (ft):			Well Depth	BTC (ft):			
Water Appeara	ance: CLEA	R, Coh	ر ۷٥١٠	mē, No	ODOR		
Stream Flow:	STAFF R	EAD O	100' =	- 3.6 GPr	۸, ٥.٥٥	8 cfs	
		FIELD M	EASUREME	NTS	<u>, </u>		
Temperature (°C)	Conductivity (uS/cm)	. рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
13.16	639	6.35	191.8	65.6	6.88	0.94	
	·	SAMPLE	S COLLEC	TED		<u>'</u>	
General Indica	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Raw / Filtere	ed			
Metals & Catio					aw Filter		
Total Suspended Solids - Unpreserved:				Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
Organics - Sul		erved:		Raw / Filtered			

Sampler's Signature_

B. Willi Date: 03/06/12

BLIND DUP HERE! DUP-080612-A E 1100

					/		
Project:	North May TCR		Personnel:	sonnel: JB Brown (J Williams) Skinner M Hart			
	Instruments:		Date and Time Instrument Calibrated				
Conductivity, pH, Eh, DO	YSI 556		08/6	06/12	1015		
Temperature	YSI 556		•		/		
Turbidity	Hach 2100		/		(
	···		SENERAL		· · · · · · · · · · · · · · · · · · ·		
Date: Aug	UST 06, 7	2012	Location: 1	A1-28A		Circle:	
Time: (15	•		Lat.		Long.		
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GRAB			Depth Sample Taken: 5(M				
Water Level B	TC (ft):		Well Depth	BTC (ft):	~	· ••••• ••• •••	
Water Appeara	ance: 546472	Y TURBID	GREEN, 1	A BUNDANT	ORGANICS	SUGHT ORGANI ODOR	
Stream Flow:	POND-1				· · · · · · · · · · · · · · · · · · ·		
		FIELD M	EASUREME	ENTS			
Temperature (°C)	Conductivity (uS/cm)	рH	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
15.50	650	8.47	103.9	151.6	15.11	8,30	
		SAMPLE	ES COLLEC	TED			
General Indicators & Anions - Unpreserv			red:	F	Raw / Filtere	ed	
Metals & Cations - Nitric Acid Preserved				Œ	law / (Filter	3	
Total Suspended Solids - Unpreserved:				Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
	furic Acid Pres	erved:		Raw / Filtered			

Sampler's Signature Jam B. Will Date: 09/06/12

TCRA Instruments: Instruments: Date and Time Instrument Calibrated Conductivity. pH, Eh, DO VSI 556 Turbidity GENERAL Date: AUGUST OG, 2012 Location: TA1-55 SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEME, NO ODOR Stream Flow: STAFF READS O, 180 = 16.0 6PM, 0.035 CFS FIELD MEASUREMENTS Temperature (°C) (uS/cm) PH Eh (ORP) DO % DO mg/I (NTU) 7.35 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Field Suspended Solids - Unpreserved: Raw / Filtered Raw / Filtered Filtered Raw / Filtered								
Instruments: Conductivity, pH, Eh, DO YSI 556 Temperature YSI 556 Turbidity Hach 2100 GENERAL Date: August 06, 2012 Location: TA(-55 (SW) GW Time: 1205 Lat. Long. SAMPLING CONDITIONS Depth Sample Taken: Well Depth BTC (ft): Well Depth BTC (ft): Water Appearance: CLEAR NO DOR Stream Flow: STAFF READS O, 180 = 140 GPm, 0.035 CFS Temperature Conductivity (°C) (us/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 20.1 9.40 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Corganics - Unpreserved: Raw / Filtered Raw / Filtered	Project:			Personnel:		J Williams	J Skinner	
Conductivity, pH, Eh, DO PSI 556 Temperature YSI 556 Turbidity Hach 2100 GENERAL Date: August OG, 2012 Location: TA1-55 SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR—, NO ODOR Stream Flow: STAFF READS O, 180 = 140 GPM, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (°C) (us/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 20.1 9.40 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	<u> </u>		<u>RA</u>	j.				
Temperature YSI 556 Turbidity Hach 2100 GENERAL Date: AUGUST OG, 2012 Location: TAI-55 SAMPLING CONDITIONS Sampling Method: GRAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR, NO DOR Stream Flow: STAFF READS O, 180 = 16.0 6Pm, 0.035 cFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90,1 9.60 0.50) SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered		Instruments:		Date a	and Time In:	strument Cal	librated	
Temperature YSI 556 Turbidity Hach 2100 GENERAL Date: AUGUST OG, 2012 Location: TAI-55 SW) GW Fime: 1205 Lat. Long. SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR, NO DOR Stream Flow: STAFF PERDS O, 180 = 16.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90,1 9.60 0.50) SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Conductivity,			/				
GENERAL Date: August og, 2012 Location: TA(-55 GW) GW Fime: 1205 Lat. Long. SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR NO ODOR Stream Flow: STAFF FEADS O, 180° = 14.0 GPM, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (°C) (uS/cm) pH En (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.40 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	pH, Eh, DO	YSI 556		08/0	26/12	(015		
GENERAL Date: AUGUST OG, 2012 Location: TA1-55 SW) GW Fime: 1205 Lat. Long. SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Water Level BTC (ft): Well Depth BTC (ft): Water Appearance: CLEAR, NO DOR Stream Flow: STAFF READS O, 180 = 16.0 GPM, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.60 0.50 SAMPLES COLLECTED Seneral Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Temperature	YSI 556			/			
Date: AUGUST 06, 2012 Location: TA(-55 (SW) GW) Fime: 1205 Lat. Long. SAMPLING CONDITIONS Sampling Method: GPAB Depth Sample Taken: SW Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR, NO DOR Stream Flow: STAFF READS 0, 180° = 14.0 6Pm, 0.035 cFS FIELD MEASUREMENTS Temperature Conductivity (°C) (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Turbidity	Hach 2100			· · · · · · · · · · · · · · · · · · ·			
Date: AUGUST OG, 2012 Location: TA1-55 (SW) GW Time: 1205 Lat. Long. SAMPLING CONDITIONS Sampling Method: GRAB Depth Sample Taken: SW Water Level BTC (ft): Well Depth BTC (ft): Water Appearance: CLEAR- , NO ODOR Stream Flow: STAFF READS O, 180' = 16.0 GPm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (°C) (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered				SENERAL			,	
Sampling Method: GRAB Depth Sample Taken: SW Water Level BTC (ft): Well Depth BTC (ft): Water Appearance: CLEAR, NO ODOR Stream Flow: STAFF READS O. 180 = 16.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity ("C") (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Date: Aug	UST 06,	2012	Location:	TA1-55	-		
Sampling Method: GRAB Depth Sample Taken: SW Water Level BTC (ft): Well Depth BTC (ft): Water Appearance: CLEAR, NO ODOR Stream Flow: STAFF READS O. 180 = 16.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity ("C") (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Time 12	.05	•	l at.	•	Long		
Depth Sample Taken: 5W Nater Level BTC (ft): Well Depth BTC (ft): Nater Appearance: CLEAR, NO ODOR Stream Flow: STAFF READS O. 180 = 14.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH En (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.40 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	14110.		SAMPLI		IONS			
Well Depth BTC (ft): Water Appearance: CLEMP, NO ODOR Stream Flow: STAFF FEADS O. 180 = 16.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	- · · · · · · · · · · · · · · · · ·		<u> </u>	T				
Atter Appearance: CLEAR, NO ODOR Stream Flow: STAFF READS O. 180 = 14.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Sampling Method: GRAB Dep			Depth Sample Taken: 5W				
Atter Appearance: CLEAR, NO ODOR Stream Flow: STAFF READS O. 180 = 14.0 6Pm, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	 	LETO (6)			RTC (#)	•	,	
Stream Flow: STAFF READS 0.180 = 16.0 6PM, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	vvaler Level b	TO (ii).		Aveil Debui	BIC (II).			
Stream Flow: STAFF READS 0.180 = 16.0 6PM, 0.035 CFS FIELD MEASUREMENTS Temperature Conductivity (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered	Water Appeara	ance: CLEAN	R, NO	ODOR	-			
Temperature Conductivity (°C) (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 80.1 9.60 0.50) SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Raw / Filtered Metals & Cations - Nitric Acid Preserved: Raw / Filtered Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered			ZEADS	0.180	=16.0	6PM, 0.0	035 CFS	
(°C) (uS/cm) pH Eh (ORP) DO % DO mg/l (NTU) 7.35 577 7.05 (31.3 90.1 9.60 0.50 SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered			FIELD M	EASUREME	NTS			
Total Suspended Solids - Unpreserved: Samples Collected Raw / Filtered	Temperature	Conductivity					Turbidity	
SAMPLES COLLECTED General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Drganics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered	(°C)	(uS/cm)	. pH	Eh (ORP)	DO %	DO mg/l	(NTU)	
General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Organics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered	7.35	577	7.05	(31.3	20,1	9.60	0.50	
General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Organics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered								
General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Organics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered								
General Indicators & Anions - Unpreserved: Metals & Cations - Nitric Acid Preserved: Total Suspended Solids - Unpreserved: Organics - Unpreserved: Raw / Filtered Raw / Filtered Raw / Filtered			SAMPLE	S COLLEC	TED	L	L <u>., </u>	
Metals & Cations - Nitric Acid Preserved: Fotal Suspended Solids - Unpreserved: Proganics - Unpreserved: Raw / Filtered Raw / Filtered								
Total Suspended Solids - Unpreserved: Raw / Filtered Organics - Unpreserved: Raw / Filtered								
Organics - Unpreserved: Raw / Filtered								
Organics - Sulfuric Acid Preserved: Raw / Filtered	Organics - Unpreserved:							
	Organics - Sul	furic Acid Pres				ed		

Sampler's Signature B. Willim Date: 08/04/12

AUGUST 06 2012 MONTHLY TERA SAMPLING 1015 CALIBRATE YSI 556 MULTI-METER TO THE FOLLOW-NI- STANDARDS: PH 7.0, GEOTECH, LOT # ZAASIO, EXP. JANGIA LOT # 2 AB 648, EXP. FED/14 PH 10.0, COND 1413, LOT # 248388, EXP. FOB/13 ORP 220 LOT # 24CZIS, EXP DEC/12 CALIBRATE DO AS PER EQUIPMENT MANUFACTURENS INSTRUCTIONS. BUMP TEST HACH ZWO TURBIOLTY METER; 6.05 NTU READS 6.06 57.3 538 1160 ARRIVE AT SITE, WARM, PARTLY CLOUDY, SLIGHT BREEZE - 74° F. OBSERVE SCOURING IN ROAD DITCH FROM TOP OF ROAD DOWN TO PIT. MUCH CESS BELOW PIT. 1135 IAI-30A COLLECT SAMPLE AND BLIND DUP HERE. STAFF AT WE'R READS: 0,100' 1150 IAI-28A COLLECT SAMPLE FROM SED POND. STAFF IN POND 8.90' 1205 IA1-55 COLLECT SAMPLE, STAFF IN WEIR READS 0,180' 1215 CONQUET SITE INSPECTION. PREP SAMPLES FOR SHIP MENT TO PACE. 400 Reven TO Day vaney

> Jan B. Wdh 08/06/12

FIELD FORMS
SEPTEMBER 4, 2012

		 	T				
Project:	North May		Personnel:	JB Brown	J Williams	J Skinner	
	TCRA			M Hart			
Instruments:			Date and Time Instrument Calibrated				
Conductivity,			/	11.		· ·	
pH, Eh, DO	YSI 556		09/04/12 0945				
Temperature	YSI 556						
Turbidity	Hach 2100				. <i>1</i>		
	SON		SENERAL				
SEPT. Date: AUGUST 04, 2012			Location: TA(-30 A SW) GW				
	45						
Time: [0	4)	CAMOLI	Lat.	IONIC	Long.		
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GRAG			Depth Sample Taken: 5W				
Water Level BTC (ft):			Well Depth BTC (ft):				
Water Appear	ance: CLEM	2, NO 0	DOR, LO	w FLOW			
Stream Flow: STATE RENDS 0.08 = 2.1 GPM							
		FIELD M	EASUREME	NTS			
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
10,71	1.59		226.7		5.92		
SAMPLES COLLECTED							
General Indicators & Anions - Unpreserved:				Raw / Filtered			
Metals & Cations - Nitric Acid Preserved:				Raw Filtered			
Total Suspended Solids - Unpreserved:				Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
Organics - Sulfuric Acid Preserved:				Raw / Filtered			
Organics - Sullunc Acid Freserved.				1 1'		, <u> </u>	

Sampler's Signature & . /	Illi	Date: 09/04/12
7	V	

Project:	North May	be Mine	Personnel:	el: JB Brown (J Williams J Skinner			
TCRA			M Hart				
Instruments:			Date :	and Time In	strument Ca	librated	
Conductivity,			-0/	1-	-64=		
pH, Eh, DO	YSI 556		09/0	4/12	0945		
Temperature	YSI 556		,	/			
Turbidity	Hach 2100	,				,	
	JBW	(SENERAL				
SEPT.			Location: 3	cation: TAI-28A (SW) GV			
Time: //00			Lat.		Long.		
		SAMPLII	NG CONDIT	IONS			
Sampling Method: GRAB			Depth Sample Taken: SW				
			Well Depth BTC (ft):				
Water Appeara		HUE, NO		_	DRGANK/A	QUATK LIFE	
Stream Flow:	POND - 1						
		FIELD M	EASUREME	NTS	,		
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)	
(2.30	670	8.51	132.4	105.6	11.30	5.37	
			_			i	
		SAMPLE	S COLLEC	TED	· · · · · · · · · · · · · · · · · · ·		
General Indicators & Anions - Unpreserved:				Raw / Filtered			
Metals & Cations - Nitric Acid Preserved:				(Raw / (Filtered)			
Total Suspended Solids - Unpreserved:				Raw / Filtered			
Organics - Unpreserved:				Raw / Filtered			
Organics - Sulfuric Acid Preserved:				Raw / Filtered			

Sampler's Signature

B. Will

Date: 08/04/12

BLIND DUP HERE: DUP-090412-A @ 1030

Project:	North May	be Mine	Personnel:	JB Brown	Williams	Skinner
	TCR	Α		M Hart		
	Instruments:			and Time In	strument Ca	librated
Conductivity, pH, Eh, DO	YSI 556		09/0	04/12 0945		5
Te mperature	YSI 556			/		
Turbidity	Hach 2100		/	, 	/	
			BENERAL	<u></u>		
Date: 🛵	SEPT. 04,	2012	Location: 7	TA1-55	(Circle:
Time: 1125			Lat. Long.			
		SAMPLII	NG CONDIT	IONS		
Sampling Method: GRAB			Depth Sample Taken: 5W			
			Well Depth BTC (ft):			
Water Appear	ance: CLEA	e, NO	ODOR			
Stream Flow: STAFF READS 0, (7'= 146PM						
		FIELD M	EASUREME	NTS		
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
6.99	613	7.36	158,0	70.8	8,55	0,65
		SAMPLE	S COLLEC	TED		
General Indicators & Anions - Unpreserved:				Raw / Filtered		
Metals & Cations - Nitric Acid Preserved:				Raw (Filtered)		
Total Suspended Solids - Unpreserved:				Raw / Filtered		
Organics - Un		Raw / Filtered				
Organics - Sulfuric Acid Preserved:				Raw / Filtered		

Sampler's Signature B. Willing Date: 09/04/12

SEPTEMBER 04, 2012 MONTHLY TORA SAMPUNG 0945 CALIBRATE YSI 556 MULTI-METE FOLLOWING STANDARDS: PH 7-0, GEOTECH, LOT # ZAA 510, EX PH 100, , LOT# ZABGH8, EXP COND 1413, 1- LOT# 2AB 388, Exp CALIBRATE DO AS PER EQUIPMENT MANUFACTURERS INSTRUCTIONS. Bump TEST HACH 2100 TURBIDITY ME 6.22 NTU READS 5.99 57.7 518 " 521 1930 ARRIVE AT SITE. WARM, CLEAR, BREEZE ~60°F. 1045 IAI-30A COLLECT SAMPLE STAFF AT WELL REXDS 0.08' 1100 TAI-ZBA COLLECT SAMPLE AND BLIND DUP HERE. STAFF IN POND READS -8.75" 1125 IAI-55 COLLECT SAMPLE AT TOE, STAFF IN WEIR READS & O, 17' 1135 FILTER SAMPLES CONDUCT SITE INSPECTION 1215 DEPART SITE 1715 PREP SAMPLES, COC, FOR SHIPMENT

for B Willi

TO PACE.

FIELD FORMS
OCTOBER 1, 2012

FIELD WATER QUALITY SAMPLING FORM

					/	
Project:	North May TCF		Personnel:	JB Brown M Hart	Williams	J Skinner
	Instruments:		Date	and Time In	strument Ca	librated
Conductivity, pH, Eh, DO	YSI 556		10/01/	12	1130	
Temperature	YSI 556		, ,	·	/	
Turbidity	Hach 2100		/			
<u> </u>		(GENERAL			,
Date: Oc	T. 01, 2	012	Location:	IA1-30	A	Circle: SW GW
Time: 12	40		Lat.		Long.	
		SAMPLII	NG CONDIT	IONS		
Sampling Met	hod: GRA	3	Depth Sam	ple Taken:	5W	
İ	TC (ft):		Well Depth	BTC (ft):		· · · · · · · · · · · · · · · · · · ·
Water Appear	ance: CLEA	R, NO (DOR, LO	ow Flo	W	
Stream Flow:	STAFF R	EADS (0.075	= 1.8 69	M	
<u> </u>		FIELD M	EASUREME	INTS		
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
11-26	703	6.31	146.9	44.5	7.26	1.63
		SAMPLE	S COLLEC	TED		
General Indica	itors & Anions -	Unpreserv	red:	F	aw / Filtere	ed
Metals & Catio	ns - Nitric Acid	Preserved	•	(F	aw Eltere	
Total Suspend	ed Solids - Uni	reserved:			aw / Filtere	
Organics - Un	oreserved:			F	law / Filtere	ed
Organics - Sul	furic Acid Pres	erved:		R	law / Filtere	ed

Sampler's Signature_

B. Will Date: 10/01/12

FIELD WATER QUALITY SAMPLING FORM

						<u> </u>
Project:	North May		Personnel:		J Williams	J Skinner
	TCR	<u>k</u> A		M Hart		
	Instruments:		Date	and Time In	strument Ca	librated
Conductivity, pH, Eh, DO	YSI 556		10/01	12	1130	
Tem perature	YSI 556		/		/	
Turbidity	Hach 2100		/		1	
		. (SENERAL	 		······································
Date: Oc	T. 01, 20	212	Location:	TA1-28	A	Circle:
Time: [25			Lat.		Long.	
		SAMPLI	NG CONDIT	IONS		
Sampling Met	hod: GRAB		Depth Sam	ple Taken:	5W	·
Water Level B	TC (ft):		Well Depth	BTC (ft):		·
Water Appeara	ance: Bright	GREEN	HUE, NO	ODOR, A	BUNDANT	ORGANIC
	No FLOW					LIFE
		FIELD M	EASUREME	NTS		
Temperature (°C)	•	pН	Eh (ORP)	DO %	DO mg/i	Turbidity (NTU)
10.92	676	8.49	96-7	145.8	16.08	4.70
		SAMPLE	S COLLEC	TED	•	
General Indica	tors & Anions -	- Unpreserv	red:	F	Raw / Filtere	ed
Metals & Catio	ns - Nitric Acid	Preserved	•	Œ	law / Eiltere)e
Total Suspend	led Solids - Unp	preserved:		F	Raw / Filtere	ed
Organics - Unr				F	Raw / Filtere	ed
	furic Acid Prese	erved:		F	Raw / Filtere	ed

Sampler's Signature for B. Will Date: 10/01/12

			15 .	10.0		1.041
Project:	North May		Personnel:		J Williams	J Skinner
	TCR Instruments:	Α	Date	M Hart	strument Ca	librated
Conductivity,	instruments.		Date	and mine in	sudment Oa	iibrated
pH, Eh, DO	YSI 556		10/01/1	2	1130	
Temperature			/		1	
Turbidity	Hach 2100				1	
			GENERAL			·
Date: OCT	. 01,20	512	Location:	FA1-55	-	Gircle:
Time: /3/			Lat.		Long.	
1 / / /		SAMPLII	NG CONDIT	IONS		
Sampling Met	nod: GRAB	· · · · · · · · · · · · · · · · · · ·	Depth Sam	ple Taken:	5W	
Water Level B	TC (ft):		Well Depth	BTC (ft):		- -
Water Appears	ance: CLEAR	, NO	0008			
Stream Flow:	STAFF PL	EADS (5.175'=	15 6 pm		
		FIELD M	EASUREME	ENTS	,—···	
Temperature (°C)	Conductivity (uS/cm)	рН	Eh (ORP)	DO %	DO mg/l	Turbidity (NTU)
6.92	550	6.97	115.3	76.2	9.24	0,55
		SAMPLI	ES COLLEC	TED		
General Indica	tors & Anions				Raw / Filter	ęd
Metals & Catio	ns - Nitric Acid	Preserved	•	(F	(aw) Filter	ed)
Total Suspend	ed Solids - Unj	preserved:		7	Raw / Filter	ed
Organics - Unj	oreserved:	-		F	Raw / Filter	ed
Organics - Sul	furic Acid Pres	erved:		<u> </u>	Raw / Filtere	ed

Sampler's Signature_

B. Willi Date: 10/01/12

BLIND DUP HERE: Dup-100112-A @1330

2000 BER 01, 2012 MONTHLY TERA SAMPLING 1130 CALIBRATE YSI 556 MULTI METER TO THE FOLLOW NO STANDARDS. PH 7.0, GEOTECH, LOT * ZAASIO, EXP JAN/14 PH 10.0 " COT# 248648, EXP FEB/14 COND 1413, , LOT# 248388, EXP. FEB/13, LOT# 2AC 215, EXP. DEC/12 ORP 220. CALIBRATE DO AS PER EQUAMENT MANUFACTURERS INSTRUCTIONS. Bump TEST HACH 2100 TURBIARY METER: 6-22 NTU READS 6.07 57.7 " 57.0 518 522 1215 ARRIVE AT SITE, WARM, CLEAR, SUNNY, CALM DAY ~ 650 F 1240 TAI- 30 A COLLECT SAMPLE STAFF AT WER READS 0.075 1255 IAI-28A CONECT SAMPLE FROM SED POND STAFF IN POND READS: -8.7 1310 FAL-55 COLLEG SAMPLE AND BLIND DUP HERE (DUP-100112-A @ 1330). STAFF IN WEIR READS 0.175" 1340 FILTER SAMPLES, CONDUCT SITE INSPECTION 1410 DEPART SITE

3.5

fam 8. Willi-10/01/12

1430 PREP SAMPLES, COC, FOR SHIPMENT TO PACE.

APPENDIX D
2012 QA/QC SUMMARY REPORT AND LABORATORY REPORTS

2012 QA/QC SUMMARY REPORT

1.0 DATA VALIDATION SUMMARY

This document describes the quality of the data collected for this investigation for surface water samples collected in May through October 2012. The data validation is summarized below including any qualification or rejection of data. The data were validated using criteria and qualifiers as provided in the USEPA National Functional Guidelines for Inorganic Data Review (NFGs) (EPA, October 2004). This summary includes the validation of 24 surface water samples, including field duplicates.

This section describes the different types of quality issues that are reviewed during data validation and then summarizes the issues that affected the samples. Table 1 lists all of the items that were outside of acceptance limits and notes the number of samples for each item that were qualified and the qualifier.

1.1 Preservation and Holding Time

Preservation is the change in pH and/or temperature that is required for a sample between collection and analysis. At times, a sample may be received by the laboratory at a temperature that is less than (<) or greater than (>) the specified temperature criteria of 4 degrees Celsius (°C) plus-or-minus (±) 2 °C (i.e., if chilling is required). If this occurs, professional judgment is used to determine if this temperature deviation has affected the quality of the results for that sample. For this set of samples, all samples were within the specified temperature range, with the exception of samples received May 4 at 0.4 °C (samples collected May 2, 2012 [IA1-55-050212, IA1-28A-050212, IA1-30A-050212, and Dup-050212-A] and August 8, 2012 at 1.6 °C (samples collected August 6, 2012 [IA1-30A-080612, IA1-28A-080612, IA1-55-080612, and DUP-080612-A]). Note that no sample bottles were frozen and metals are not lost if the temperature criteria are exceeded. No data were qualified as the analytical methods and regulatory criteria do not specify chilling for metals analysis and the Functional Guidelines do not specify qualification of data for metals analysis if samples are not within 4 °C ± 2 °C. The sample receipt temperatures are therefore considered acceptable.

The most common pH preservation for inorganic analyses is the acidification of aqueous samples to a pH of < 2. If this is required and the pH is > 2, it also must be determined if the quality of the data were affected. For this investigation, the pH of the samples were always in

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the acceptable range; therefore, there was no judgment made on what unacceptable pHs would affect the quality of the data.

The holding time is the acceptable length of time between collection and analysis of a sample if the preservation was acceptable. For this investigation, all samples were prepared and analyzed within applicable holding times.

1.2 Laboratory Blanks

The next items that were reviewed during data validation were the laboratory blank samples. These included calibration blanks, laboratory reagent blanks, and any other types of laboratory blanks included in the laboratory data packages. Laboratory blank samples are contaminant-free media that are analyzed to indicate if there has been possible contamination of the field samples during analysis. If there are detections of constituents in the blank samples above the method detection limit (MDL), then this contamination could possibly have occurred for the field samples.

Any laboratory blank sample result that was > the associated sample MDL was noted during validation. It was then determined, using the criteria from the NFGs, what action, if any, should be taken. If an analyte was detected in a laboratory blank sample, action may have been taken based on the NFGs. These actions may have included; 1) changing the sample result to the practical quantitation limit (PQL) and qualifying this result as nondetect (U), 2) changing the sample result to the blank value and qualifying this result as nondetect (U), or 3) qualifying the original sample result as nondetect (U). Because blank results are usually very low, any blank detection would usually affect only sample results at very low concentrations at/or near the detection limits and, therefore, should not affect the investigation unless an action level is very near the detection limit.

There were no blank detections greater than the PQL associated with reported sample results for this investigation. For blank detections below the PQL, any associated sample results less than 10 times the blank value and less than the PQL are changed to the PQL and qualified as nondetect (U). For blank detections below PQL, associated sample results less than 10 times

the blank value but greater than the PQL are not required to be qualified by the Functional Guidelines using professional judgment. As all sample results associated with blank detections were significantly greater than 10 times the blank value; therefore, no sample results required qualification.

1.3 Laboratory Control Samples

A laboratory control sample (LCS) is contaminant-free media that has been spiked with a known amount of specified constituents to determine the accuracy of the analysis. This is measured by determining the percent recovery (%R) of the LCS. Control limits are specified for recoveries for each method. If the %R is less than the lower control limit (< LCL), then the constituent is not being completely recovered and associated detected results are qualified with a "J-" and are considered estimated for potential low bias and associated nondetects are either considered estimated and qualified with a "UJ-" or rejected (i.e., unusable) and qualified with an "R." If the %R is greater than the upper control limit (> UCL), the associated detected results are qualified with a "J+" and are considered estimated for potential high bias and associated nondetects are not qualified. All LCS results associated with reported sample results for this investigation were within acceptable control limits, and no data were qualified.

1.4 Matrix Spike/Matrix Spike Duplicate Analysis

Matrix spike/matrix spike duplicate (MS/MSD) samples (e.g., laboratory fortified matrix) are field samples that have been spiked with a known amount of a constituent. The %R is determined for each MS and MSD sample. If the %R is < LCL, the detections are qualified with a "J-" and are considered estimated for potential low bias and the nondetects are either considered estimated and qualified with a "UJ-" or rejected (i.e., unusable) and qualified with an "R." If the %R is > UCL, the associated detected results are qualified with a "J+" and are considered estimated for potential high bias and associated nondetects are not qualified. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. All MS/MSD results were within the acceptance criteria, with the following exceptions.

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The percent recoveries (%Rs) of 128% and 130% for dissolved zinc in the MS/MSD and 126% for dissolved vanadium in the MS analyses of sample IA1-30A-090412 (10204498-001) exceeded the 75-125%R control limits for metals. The associated results for dissolved vanadium and zinc were qualified as estimated (J+) for potential minor high bias. The associated results for total vanadium and zinc were also qualified as estimated (J+) for potential minor high bias as no project-specific MS/MSD was analyzed for total metals for this SDG.

The analytes qualified for MS/MSD outliers with the number of samples that were affected for each media are listed in Table 1.

For the duplicate analysis (MS/MSD), the relative percent difference (RPD) is calculated unless one or both of the results are nondetect (which are not evaluated). If the RPD is greater than the acceptable criteria as noted in the NFGs, the results may be qualified as either estimated (J) or nondetect estimated (UJ). All RPDs were within the acceptance criteria.

1.6 Overall Quality on Data Validation Results

Four results were qualified as estimated (J+) for marginally high matrix spike recoveries. These results may be biased slightly high. No other data were qualified as estimated or rejected; therefore, the data are considered usable for their intended purposes.

2.0 FIELD DUPLICATE SUMMARY

In 2012 for this investigation, six surface water field duplicate samples were collected for 18 parent samples. The results of these field duplicate samples and their parent samples are listed in Table 2. These field duplicate sample results were compared to their parent sample results by using the following rules:

The RPD is calculated for each set of results. If the RPD is within the range of ±30, then
the results are acceptable.

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- If the RPD is not within the range of ±30 then it is determined if either result is < 5 times the practical quantitation limit (PQL). If neither is < 5 times the PQL, then the results are not considered acceptable.
- If one or both of the results are < 5 times the PQL, then the difference between the results is compared. If the difference between the results is < 2 times the PQL, then the results are considered acceptable.

Table 2 contains a column with the calculated RPDs. If the RPD is not calculable (one or both results is nondetect and, therefore, has no value), "NC" has been placed in this column. For anion/cation balance, RPD is not applicable, as this is a ratio. For the remaining values, the above rules were applied. The next column notes if the results were acceptable based on the difference between them (i.e., one or both of the results was < 5 times the PQL). All field duplicate sample pair results were acceptable.

2.1 Overall Quality Based on Field Duplicate Results

Because all field duplicate sample pair results were acceptable, there were no quality issues with the data based on the field duplicate results.

3.0 FIELD BLANK SUMMARY

In 2012 for this investigation, no field blanks were collected as all samples were collected using disposable equipment.

Table 1 Data Validation Summary, Surface Water, 2012

SURFACE WATER	Cadn	nium	Chron	nium	Nic	kel	Sele	enium	Vana	dium	Zii	nc	Calcium	Magnesium
Total No. of Samples = 24	Dissolved	Total	Dissolved	Dissolved										
MS/MSD (J+)									4	4	4	4		

Note: No samples were qualified as U at the practical quantitation limit.

SURFACE WATER Total No. of Samples = 24	Calcium	Magnesium Total	Potassium Dissolved	Sodium Total and Dissolved	Sulfate	Bicarbonate Alkalinity	Carbonate Alkalinity	SECURITIES AND ASSESSMENT	Sum of Anions	Sum of Cations	Cation- Anion Balance
None											

Table 2 Field Duplicate Results, Surface Water, 2012

				Result			Γ_			Τ	Result	· ·				
Sample Name	Media	Analyte	Fraction	(mg/L)	PQL	L	v	Duplicate Name	Analyte	Fraction	(mg/L)	PQL	$ $	v l	RPD	Comment
IA1-30A-050212	SW	Cadmium	Total	0.0015	0.00008	\vdash		Dup-050212-A	Cadmium	Total	0.0014	0.0000	4	Ť	7	Comment
IA1-30A-050212	SW	Cadmium	Dissolved	0.0014	0.00008			Dup-050212-A	Cadmium	Dissolved	0.0014	0.0000	_		0	
IA1-30A-050212	SW	Calcium	Dissolved	82.6	0.1			Dup-050212-A	Calcium	Dissolved	83.6	0.0000	1	-	-1	
IA1-30A-050212	SW	Chromium	Total	0.017	0.0005		<u> </u>	Dup-050212-A	Chromium	Total	0.016	0.000	4		6	
IA1-30A-050212	sw	Chromium	Dissolved	0.017	0.0005	⊢	 	Dup-050212-A	Chromium	Dissolved	0.017	0.000			0	
IA1-30A-050212	sw	Magnesium	Dissolved	19.7	0.005	⊢	\vdash	Dup-050212-A	Magnesium	Dissolved	19.5	0.00	1		1	
IA1-30A-050212	SW	Nickel	Total	0.014	0.000	\vdash		Dup-050212-A	Nickel	Total	0.013	0.000		\vdash	! -	
IA1-30A-050212	SW	Nickel	Dissolved	0.013	0.0005	\vdash	\vdash	Dup-050212-A	Nickel	Dissolved	0.013	0.000			0	
IA1-30A-050212	sw	Selenium	Total	2.3	0.005	\vdash	\vdash	Dup-050212-A	Selenium	Total	2.2	0.000				
IA1-30A-050212	SW	Selenium	Dissolved	2.2	0.0025	_	\vdash	Dup-050212-A	Selenium	Dissolved	2.2	0.002			<u>4</u>	
IA1-30A-050212	SW	Vanadium	Total	0.049	0.002	<u> </u>	-	Dup-050212-A	Vanadium		-		-			
IA1-30A-050212	SW	Vanadium	Dissolved	0.049	0.000		├─	Dup-050212-A		Total	0.047	0.000			4	· · · · · · · · · · · · · · · · · · ·
IA1-30A-050212	SW	Zinc	Total	0.049	0.000	-	_		Vanadium	Dissolved	0.048	0.000	+		2	
IA1-30A-050212	SW	Zinc		0.057	0.005	┝	├	Dup-050212-A	Zinc	Total	0.056	0.00			44	
			Dissolved			<u> </u>	├	Dup-050212-A	Zinc	Dissolved	0.056	0.00	1	-	2	
IA1-30A-050212	SW	Total Hardness	Dissolved	288	0.36	<u> </u>	_	Dup-050212-A	Total Hardness	Dissolved	289	0.30			0	
IA1-28A-060512	SW	Cadmium	Total	0.0019	0.00008	<u> </u>		DUP-060512-A	Cadmium	Total	0.0018	0.0000			5	
IA1-28A-060512	SW	Cadmium	Dissolved	0.0017	0.00008	!	<u> </u>	DUP-060512-A	Cadmium	Dissolved	0.0018	0.0000	8		-6	
IA1-28A-060512	SW	Calcium	Dissolved	97.4	0.1	L		DUP-060512-A	Calcium	Dissolved	99.9	0.1			-3	
IA1-28A-060512	SW	Chromium	Total	0.0076	0.000		ļ	DUP-060512-A	Chromium	Total	0.0076	0.000	1		0	
IA1-28A-060512	sw	Chromium	Dissolved	0.0074	0.0005		ļ	DUP-060512-A	Chromium	Dissolved	0.0079	0.000	5		-7	
IA1-28A-060512	SW	Magnesium	Dissolved	20.3	0.005	<u> </u>		DUP-060512-A	Magnesium	Dissolved	21.1	0.00	4		-4	
IA1-28A-060512	SW	Nickel	Total	0.015	0.0005			DUP-060512-A	Nickel	Total	0.015	0.000	\$		0	
IA1-28A-060512	SW	Nickel	Dissolved	0.015	0.0008	<u> </u>		DUP-060512-A	Nickel	Dissolved	0.015	0.000	\$		0	
IA1-28A-060512	SW	Selenium	Total	1.7	0.0025		L	DUP-060512-A	Selenium	Total	1.8	0:002	\$		-6	
IA1-28A-060512	SW	Selenium	Dissolved	1.9	0.0025			DUP-060512-A	Selenium	Dissolved	1.9	0.002	\$		0	
IA1-28A-060512	SW	Vanadium	Total	0.044	0.0001			DUP-060512-A	Vanadium	Total	0.042	0.000	1		5	
IA1-28A-060512	SW	Vanadium	Dissolved	0.044	0.000			DUP-060512-A	Vanadium	Dissolved	0.045	0.000	1		-2	·
IA1-28A-060512	SW	Zinc	Total	0.064	0.005			DUP-060512-A	Zinc	Total	0.064	0.00	5		0	
IA1-28A-060512	SW	Zinc	Dissolved	0.065	0.005	•		DUP-060512-A	Zinc	Dissolved	0.067	0.00	5		-3	· · · · · · · · · · · · · · · · · · ·
IA1-28A-060512	SW	Total Hardness	Dissolved	327	0.36			DUP-060512-A	Total Hardness	Dissolved	336	0.30	d d		-3	
IA1-55-070512	SW	Cadmium	Total	0.0021	0.00008			DUP-070512-A	Cadmium	Total	0.0021	0.0000	a a		0	
IA1-55-070512	SW	Cadmium	Dissolved	0.0021	0.00008			DUP-070512-A	Cadmium	Dissolved	0.0020	0.0000			5	
IA1-55-070512	SW	Calcium	Total	108	0.2			DUP-070512-A	Calcium	Total	110	0.			-2	
IA1-55-070512	SW	Calcium	Dissolved	116	0.2			DUP-070512-A	Calcium	Dissolved	114	0.:	1			
IA1-55-070512	SW	Chromium	Total	0.0058	0.0005			DUP-070512-A	Chromium	Total	0.0058	0.000			0	
IA1-55-070512	SW	Chromium	Dissolved	0.0057	0.0005		1	DUP-070512-A	Chromium	Dissolved	0.0055	0.000]		4	
IA1-55-070512	SW	Magnesium	Total	23.7	0.05			DUP-070512-A	Magnesium	Total	23.5	0.0	}		1	
IA1-55-070512	SW	Magnesium	Dissolved	23.8	0.05	-	1	DUP-070512-A	Magnesium	Dissolved	21.9	0.00	1		8	
IA1-55-070512	sw	Nickel	Total	0.019	0.0005			DUP-070512-A	Nickel	Total	0.019	0.000	 		- 0	
IA1-55-070512	SW	Nickel	Dissolved	0.018	0.0005		-	DUP-070512-A	Nickel	Dissolved	0.013	0.000	1	 	6	
IA1-55-070512	SW	Potassium	Total	1.8	0.02			DUP-070512-A	Potassium	Total	1.8	0.000	1		0	
IA1-55-070512	SW	Potassium	Dissolved	1.9	0.02	┢	 	DUP-070512-A	Potassium	Dissolved	1.8	0.0		┝─┤	5	
IA1-55-070512	SW	Selenium	Total	1.8	0.005		1	DUP-070512-A	Selenium	Total	1.8	0.00			0	
IA1-55-070512	sw	Selenium	Dissolved	2.1	0.005	l —	\vdash	DUP-070512-A	Selenium	Dissolved	2.0	0.00				
IA1-55-070512	sw	Sodium	Total	5.2	0.05	 		DUP-070512-A	Sodium	Total	5.2	0.00	_		5	··-
IA1-55-070512	SW	Sodium	Dissolved	5.3	0.05	\vdash	\vdash	DUP-070512-A	Sodium	Dissolved						
IA1-55-070512	sw	Vanadium	Total	0.037	0.000	\vdash	 	DUP-070512-A	Vanadium	Total	5.1 0.037	0.00			0	
IA1-55-070512	sw	Vanadium	Dissolved	0.039	0.000		\vdash	DUP-070512-A	Vanadium	Dissolved	0.037	0.000				
IA1-55-070512	sw	Zinc	Total	0.083	0.005	<u> </u>	\vdash	DUP-070512-A	Zinc	Total	0.037	0.000			5	
55 5, 55,12	J.,			3.000	0.00	<u> </u>		DOF-010312-A	ZIIIC .	TOTAL	0.082	0.00	<u> </u>		1	

Table 2 Field Duplicate Results, Surface Water, 2012

	l			Result						T	Result			-		
Sample Name	Media	Analyte	Fraction	(mg/L)	PQL	ᅵᅵ	v	Duplicate Name	Analyte	Fraction	(mg/L)	PQL	L	v		
A1-55-070512	SW	Zinc	Dissolved	0.083	0.005			DUP-070512-A	Zinc	Dissolved			-	<u> </u>	RPD	Comment
A1-55-070512	SW	Total Hardness	Total	368	0.7			DUP-070512-A	Total Hardness		0.079	0.005	1		5	
A1-55-070512	SW	Total Hardness	Dissolved	388	0.7	\vdash		DUP-070512-A	Total Hardness	Total	372	0.71			1	
A1-55-070512	SW	Chloride		3.8		\vdash		DUP-070512-A	Chloride	Dissolved	374	0.71			4	
A1-55-070512	SW	Sulfate		194	10	\Box	_	DUP-070512-A	Sulfate	ļ	3.7		!		3	
A1-55-070512	SW	Alkalinity, Carbonate (C	aCO3)	2.5	''	U		DUP-070512-A			193	10			1	
A1-55-070512	SW	Alkalinity, Total as CaC	O3	173		H		DUP-070512-A	Alkalinity, Carbonate (C		2.5	5	U		0	
A1-55-070512	SW	Alkalinity, Bicarbonate (173			_	DUP-070512-A	Alkalinity, Total as CaC		175				-1	
A1-55-070512	SW	Total Anions	Calculation	7.6		\vdash		DUP-070512-A	Alkalinity, Bicarbonate (175	5			-1	
A1-55-070512	sw	Total Cations	Calculation	8.0		╌┪		DUP-070512-A	Total Anions	Calculation					0	
A1-55-070512	SW	Cation/Anion Balance	Ratio	2.8				DUP-070512-A	Total Cations	Calculation				[4	
A1-30A-080612	SW	Cadmium	Total	0.00055	0.00008	-		DUP-080612-A	Cation/Anion Balance	Ratio	0.78			\Box	NA	
A1-30A-080612	sw	Cadmium	Dissolved	0.00056					Cadmium	Total	0.00061	0.00008			-10	
A1-30A-080612	SW	Calcium	Dissolved	NR	0.0000	;─-}		DUP-080612-A	Cadmium	Dissolved	0.00058	0.00008			-4	
A1-30A-080612	sw	Chromium	Total	0.0056	0.0005			DUP-080612-A	Calcium	Dissolved	113	Ö.2			NC	
A1-30A-080612	sw	Chromium	Dissolved	0.0050	0.0005	-		DUP-080612-A	Chromium	Total	0.0047	0.0005		7	17	
A1-30A-080612	sw	Magnesium	Dissolved	0.0030	0.000	-		DUP-080612-A	Chromium	Dissolved	0.0049	0.0005			2	
A1-30A-080612	sw	Nickel	Total	0.0078	0.0005	-		DUP-080612-A	Magnesium	Dissolved	24.4	0.05		\neg	NC	
A1-30A-080612	sw	Nickel	Dissolved	0.0078	0.0005			DUP-080612-A	Nickel	Total	0.0078	0.000\$			0	
A1-30A-080612	sw	Selenium	Total	1.7	0.0003			DUP-080612-A	Nickel	Dissolved	0.0080	0.0005			-1	
A1-30A-080612	sw	Selenium	Dissolved	1.8	0.0025	-+		DUP-080612-A	Selenium	Total	2.1	0.0025			-21	
A1-30A-080612	sw	Vanadium .	Total	0.022	0.0023	\dashv		DUP-080612-A	Selenium	Dissolved	1.8	0.005			0	
A1-30A-080612	SW	Vanadium	Dissolved	0.022				DUP-080612-A	Vanadium	Total	0.022	0.0001			0	
A1-30A-080612	sw	Zinc	Total	0.022	0.0001			DUP-080612-A	Vanadium	Dissolved	0.022	0.0001		\top	0	
A1-30A-080612	sw	Zinc	Dissolved	0.018	0.00\$	-+		DUP-080612-A	Zinc	Total	0.019	0.005			-5	
A1-30A-080612	sw	Total Hardness	Dissolved	391	0.00\$			DUP-080612-A	Zinc	Dissolved	0.019	0.005		_	5	
A1-28A-090412	sw	Cadmium	Total		0.71			DUP-080612-A	Total Hardness	Dissolved	383	0.71			2	
1-28A-090412	sw	Cadmium		0.0015	0.00008			DUP-090412-A	Cadmium	Total	0.0014	0.00008			7	
A1-28A-090412	sw	Calcium	Dissolved	0.00086	0.00008			DUP-090412-A	Cadmium	Dissolved	0.00083	0.00008		\top	4	
A1-28A-090412	sw	Chromium	Dissolved Total	140	0.2			DUP-090412-A	Calcium	Dissolved	118	0.2		\neg	17	
1-28A-090412	sw	Chromium		0.0049	0.0005			DUP-090412-A	Chromium	Total	0.0051	0.0005			-4	
A1-28A-090412	SW	Magnesium	Dissolved	0.0049	0.0005	_		DUP-090412-A	Chromium	Dissolved	0.0047	0.0005			4	
1-28A-090412	sw	Nickel	Dissolved	27.2	0.025	→.			Magnesium	Dissolved	25.4	0.025		_	7	
1-28A-090412	sw	Nickel	Total	0.016	0.0005	— .	_	DUP-090412-A	Nickel	Total	0.015	0.0005	_	_	6	
1-28A-090412		Selenium	Dissolved	0.015	0.0005	\dashv		DUP-090412-A	Nickel	Dissolved	0.014	0.0005	$\neg +$	-	7	
1-28A-090412		Selenium	Total	2.0	0.0025	_		DUP-090412-A	Selenium		1.9	0.0025	-+	+	5	
1-28A-090412	sw	Vanadium	Dissolved	2.1	0.0025			DUP-090412-A	Selenium		2.0	0.0025	-+-	-	5	
1-28A-090412	sw		Total	0.035	0.0001		J+	DUP-090412-A	Vanadium		0.034	0.0001	- ,	+	3	·
1-28A-090412		Vanadium	Dissolved	0.036	0.0001		J+	DUP-090412-A	Vanadium		0.034	0.0001		+	6	
1-28A-090412		Zinc Zinc	Total	0.048	0.005	_	J+	DUP-090412-A	Zinc		0.046	0.005		+	4	
1-28A-090412			Dissolved	0.034	0.005		J+	DUP-090412-A	Zinc		0.032	0.005		+	6	
11-20/1-030412	300	Total Hardness	Dissolved	462	0.71	- 1	I	DUP-090412-A	Total Hardness		398	0.003			15	

Table 2 Field Duplicate Results, Surface Water, 2012

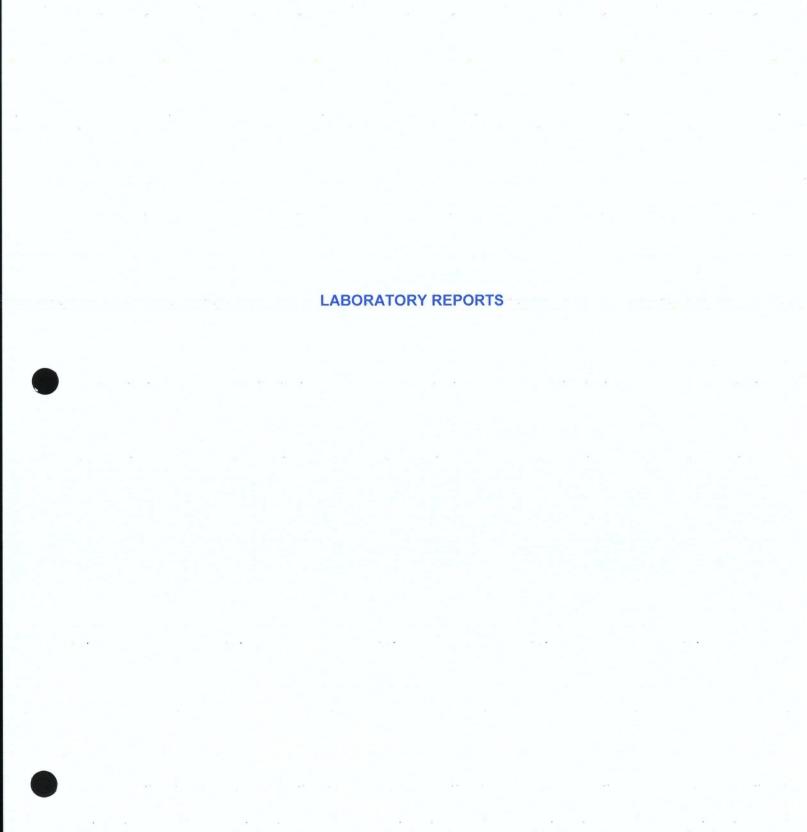
Sample Name	Media		Fraction	Result (mg/L)	ı	L	v	Duplicate Name	Analyte	Fraction	Result (mg/L)	PQL	L	V	RPD	Comment
IA1-55-100112	SW	Cadmium	Total	0.0023	0.00008	8		DUP-100112-A	Cadmium	Total	0.0023	0.00008	<u> </u>	'		Comment
IA1-55-100112	SW	Cadmium	Dissolved	0.0023	0.00008	4		DUP-100112-A	Cadmium	Dissolved	0.0022	0.00008		├~		
IA1-55-100112	SW	Calcium	Dissolved	206	0.4	4		DUP-100112-A	Calcium	Dissolved	200	0.00000		 		
IA1-55-100112	SW	Chromium	Total	0.0053	0.0009	\$		DUP-100112-A	Chromium	Total	0.0052	0.0005		 		
IA1-55-100112	sw	Chromium	Dissolved	0.0049	0.000	\$		DUP-100112-A	Chromium	Dissolved	0.0032	0.0005		1		
IA1-55-100112	SW	Magnesium	Dissolved	28.3	0.02	\$		DUP-100112-A	Magnesium	Dissolved	28.3	0.000				
IA1-55-100112	SW	Nickel	Total	0.020	0.000	5		DUP-100112-A	Nickel	Total	0.021	0.0005		 		
IA1-55-100112	sw	Nickel	Dissolved	0.020	0.000	5		DUP-100112-A	Nickel	Dissolved	0.019	0.0005			5	
IA1-55-100112	SW	Selenium	Total	2.1	0.005	5		DUP-100112-A	Selenium	Total	2.0	0.000		\vdash		
A1-55-100112	SW	Selenium	Dissolved	2.1	0.0025	, 		DUP-100112-A	Selenium	Dissolved	2.1	0.0025		├		
IA1-55-100112	SW	Vanadium	Total	0.036	0.0001			DUP-100112-A	Vanadium	Total	0.036	0:0001			0	
IA1-55-100112	SW	Vanadium	Dissolved	0.035	0.0001	-	\vdash	DUP-100112-A	Vanadium	Dissolved	0.035			-		·
IA1-55-100112	SW	Zinc	Total	0.085	0.005			DUP-100112-A	Zinc	Total	0.035	0.0001	_	 	- 0	
IA1-55-100112	SW	Zinc	Dissolved	0.097	0.025	<u> </u>		DUP-100112-A	Zinc	Dissolved	0.083	0.005			-2	
IA1-55-100112	SW	Total Hardness	Dissolved	632	1.4	\vdash		DUP-100112-A	Total Hardness			0.025		\vdash	16	
A = Not Applicat	ole (ratio)		NC - Not Co	Jan Jakia		Ь.	<u> </u>	DOT TOOTIZ-A	Total Hardness	Dissolved	615	1.4	Ŀ.		3	

NC = Not Calculable

NR = Not Reported

L = Laboratory qualifier

V = Validation qualifier



DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services, Inc.

Pace Project ID:

10191224

Data Validator:

Chris Davis

Date Validated:

December 5, 2012

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters

and Methods:

Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8
 Dissolved Cations (calcium, magnesium); 200.8

3. Hardness; SM2340B

Sample Identifications:

IA1-55-050212

IA1-28A-050212 IA1-30A-050212

Dup-050212-A (field duplicate for IA1-30A-050212)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected, except laboratory reagent blanks (LRBs) or continuing calibration

blanks (CCBs) at the following maximum concentrations in the specified batches

for:

Dissolved calcium at 0.0020 mg/L (LRB MPRP/32308)

Dissolved magnesium at 0.00050 mg/L (LRB MPRP/32308)

Dissolved hardness at 0.071 mg/L (LRB MPRP/32308)

Dissolved and total vanadium at 0.000086 mg/L (CCBs) total cadmium at 0.000036 mg/L (CCBs)

Qualification: No qualification was necessary. All sample results were greater than 10-times the concentrations in the associated blanks.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable. Note that the percent recovery (%R) of 63% for the matrix spike (MS) analysis of dissolved selenium in sample IA1-28A-050212 (10191224-002) exceeded the 75-125%R control limits for metals. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. As the sample result exceeded four times the spike, no qualifiers are applicable.

6. OVERALL ASSESSMENT

No other issues were identified.

NOTE: THE FOLOWING LABORATORY DATA REPORT (10191224) IS LEVEL 3 FORMAT. THE LEVEL 4 REPORT IS INCLUDED AS AN ELECTRONIC VERSION ON THE DISK IN THE BACK OF THE BINDER.





May 30, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: Revised: North Maybe Mine

Pace Project No.: 10191224

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on May 04, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised: This report was revised on 5/30/12 to change the reportable units to mg/l per client request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Enclosures

cc: Cindy Emmons, Norwest Corporation James Williams, Agrium





Pace Analytical Services, Inc. 1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

CERTIFICATIONS

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414 A2LA Certification #: 2926.01 Alaska Certification #: UST-078 Alaska Certification #MN00064 Arizona Certification #: AZ-0014 Arkansas Certification #: 88-0680 California Certification #: 01155CA EPA Region 8 Certification #: Pace Florida/NELAP Certification #: E87605 Georgia Certification #: 959 Idaho Certification #: MN00064 Illinois Certification #: 200011 Iowa Certification #: 368 Kansas Certification #: E-10167 Louisiana Certification #: 03086 Louisiana Certification #: LA080009 Maine Certification #: 2007029 Maryland Certification #: 322 Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace Montana Certification #: MT CERT0092 Nevada Certification #: MN_00064 Nebraska Certification #: Pace New Jersey Certification #: MN-002 New Mexico Certification #: Pace New York Certification #: 11647 North Carolina Certification #: 530 North Dakota Certification #: R-036 North Dakota Certification #: R-036A Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921 Oklahoma Certification #: 9507 Oregon Certification #: MN200001 Pennsylvania Certification #: 68-00563
Puerto Rico Certification Tennessee Certification #: 02818 Texas Certification #: T104704192 Washington Certification #: C754 Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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Page 2 of 16



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SAMPLE SUMMARY

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10191224001	IA1-55-050212	Water	05/02/12 14:45	05/04/12 09:50
10191224002	IA1-28A-050212	Water	05/02/12 14:25	05/04/12 09:50
10191224003	IA1-30A-050212	Water	05/02/12 14:05	05/04/12 09:50
10191224004	Dup-050212-A	Water	05/02/12 13:30	05/04/12 09:50



Pace Analytical Services, Inc.

1700 Elm Street - Suite 200 Minneapolis, MN 55414

(612)607-1700

SAMPLE ANALYTE COUNT

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10191224001	IA1-55-050212	EPA 200.8	RR1	6	PASI-M
		EPA 200.8	RR1	9	PASI-M
10191224002	IA1-28A-050212	EPA 200.8	RR1	6	PASI-M
		EPA 200.8	RR1	9	PASI-M
10191224003	IA1-30A-050212	EPA 200.8	RR1	6	PASI-M
		EPA 200.8	RR1	9	PASI-M
10191224004	Dup-050212-A	EPA 200.8	RR1	6	PASI-M
		EPA 200.8	RR1	9	PASI-M

REPORT OF LABORATORY ANALYSIS

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Page 4 of 16



Pace Analytical Services, Inc. 1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No .:

10191224

Method:

EPA 200.8

Client:

Description: 200.8 MET ICPMS Agrium- Nu-West

Date:

May 30, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

nternal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:



Pace Analytical Services, Inc. 1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West May 30, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

V: Indicates that the analyte was detected in both the sample and the associated method blank.

- Dup-050212-A (Lab ID: 10191224004)
- · IA1-28A-050212 (Lab ID: 10191224002)
- IA1-30A-050212 (Lab ID: 10191224003)
- IA1-55-050212 (Lab ID: 10191224001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/32308

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10190611001,10191224002 J(M1): Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1192482)
 - · Calcium, Dissolved
- MSD (Lab ID: 1192483)
 - · Calcium, Dissolved

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 1192484)
 - · Selenium, Dissolved

REPORT OF LABORATORY ANALYSIS

Page 6 of 16

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PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West

Date:

May 30, 2012

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/32308

V: Indicates that the analyte was detected in both the sample and the associated method blank.

- Dup-050212-A (Lab ID: 10191224004)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
- IA1-28A-050212 (Lab ID: 10191224002)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
- IA1-30A-050212 (Lab ID: 10191224003)
 - · Calcium, Dissolved
 - Magnesium, Dissolved
- IA1-55-050212 (Lab ID: 10191224001)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved

This data package has been reviewed for quality and completeness and is approved for release.





ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Sample: IA1-55-050212	Lab ID: 1019	1224001 Collec	ted: 05/02/1	2 14:45	Received: 05	/04/12 09:50 M	atrix: Water	
Parameters	Results Un	iits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Metho	od: EPA 200.8 Pre	paration Met	hod: EP	A 200.8		-	
Cadmium	0.0016 mg/L	0.000080	0.000028	1	05/15/12 17:38	05/17/12 22:50	7440.43.0	
Chromium	0.018 mg/L	0.00050	0.000094	1	05/15/12 17:38	05/17/12 22:50		
Nickel	0.015 mg/L	0.00050	0.000091	1	05/15/12 17:38	05/17/12 22:50		
Selenium	2.4 mg/L	0.0050	0.0022	10	05/15/12 17:38	05/19/12 11:28	7782-49-2	
Vanadium	0.050 mg/L	0.00010	0.000027	1	05/15/12 17:38	05/17/12 22:50		
Zinc	0.067 mg/L	0.0050	0.0025	1	05/15/12 17:38	05/17/12 22:50		
200.8 MET ICPMS, Dissolved	Analytical Metho	d: EPA 200.8 Pre	paration Meth	nod: EP	A 200.8			
Cadmium, Dissolved	0.0016 mg/L	0.000080	0.000028	1	05/14/12 13:16	05/16/12 21:59	7440-43-0	
Calcium, Dissolved	83.2 mg/L	0.10	0.042	5	05/14/12 13:16			V
Chromium, Dissolved	0.018 mg/L	0.00050	0.000094	1	05/14/12 13:16			•
Magnesium, Dissolved	19.5 mg/L	0.0050	0.0019	1			7439-95-4	V.
Nickel, Dissolved	0.015 mg/L	0.00050	0.000091	1	05/14/12 13:16		7440-02-0	۷.
Selenium, Dissolved	_2.3 mg/L	0.025	0.011	50	05/14/12 13:16		7782-49-2	
otal Hardness by 2340B, Dissolved	288 mg/L	0.36	0.18	5	05/14/12 13:16	05/16/12 22:02		
/anadium, Dissolved	0.051 mg/L	0.00010	0.000027	1	05/14/12 13:16	05/16/12 21:59	7440-62-2	
Zinc, Dissolved	0.066 mg/L	0.0050	0.0025	1			7440-66-6	

Date: 05/30/2012 05:09 PM

REPORT OF LABORATORY ANALYSIS

Page 8 of 16

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05/14/12 13:16 05/16/12 21:59 7440-66-6





ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

0.062 mg/L

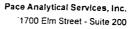
Pace Project No.: 10191224

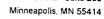
Zinc, Dissolved

Sample: IA1-28A-050212	Lab ID: 10	0191224002 Coll	ected: 05/02/	12 14:25	Received: 05	/04/12 09:50 M	atrix: Water	
Parameters	Results	Units PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Me	ethod: EPA 200.8 F	reparation Me	thod: EF	A 200.8	,		
Cadmium	0.0016 mg/l	0.0000	80 0.000028	1	05/15/12 17:38	05/17/12 22:57	7440-43-9	
Chromium	0.016 mg/l	L 0.000	50 0.000094	1	05/15/12 17:38	05/17/12 22:57		
Nickel	0.014 mg/l	0.000	50 0.000091	1	05/15/12 17:38	05/17/12 22:57	7440-02-0	
Selenium	2.2 mg/l	_ 0.00	50 0.0022	10	05/15/12 17:38	05/19/12 11:32	7782-49-2	
∕anadium	0.048 mg/l	0.000	10 0.000027	1	05/15/12 17:38			
Zinc	0.059 mg/l	_ 0.00	50 0.0025	1	05/15/12 17:38	05/17/12 22:57		
200.8 MET ICPMS, Dissolved	Analytical Me	thod: EPA 200.8 P	reparation Me	thod: EP	A 200.8			
Cadmium, Dissolved	0.0015 mg/L	0.0000	80 0.000028	1	05/14/12 13:16	05/16/12 22:09	7440-43-9	
Calcium, Dissolved	81.7 mg/L	_ 0.	10 0.042	5	05/14/12 13:16	05/16/12 22:12	7440-70-2	V
Chromium, Dissolved	0.017 mg/L	_ 0.000	50 0.000094	1	05/14/12 13:16	05/16/12 22:09	7440-47-3	
Magnesium, Dissolved	19.2 mg/L	- 0.00	50 0.0019	1 -	05/14/12 13:16	05/16/12 22:09	7439-95-4	V
Nickel, Dissolved	0.014 mg/L	0.000	50 0.000091	1	05/14/12 13:16			•
Selenium, Dissolved	- 2.2 mg/L	_ 0.00	25 0.0011	5	05/14/12 13:16	05/16/12 22:12		M6
Total Hardness by 2340B, Dissolved	283 mg/L		36 0.18	5	05/14/12 13:16	05/16/12 22:12		
anadium, Dissolved	0.051 mg/L	0.000	10 0.000027	1	05/14/12 13:16	05/16/12 22:09	7440-62-2	
.								

0.0050

0.0025







Pace Analytical *

ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Sample: IA1-30A-050212	Lab ID: 101	191224003 Colle	cted: 05/02/1	12 14:05	Received: 05	i/04/12 09:50 M	atrix: Water	
Parameters	Results I	Jnits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Met	hod: EPA 200.8 Pr	eparation Met	thod: EF	A 200.8			
Cadmium	0.0015 mg/L	0.00008	0.000028	1	05/15/12 17:38	06/17/12 22:04	7440 40 0	•
Chromium	0.017 mg/L	0.0005		1	05/15/12 17:38			
Nickel	0.014 mg/L	0.0005		1	05/15/12 17:38			
Selenium	2.3 mg/L	0.0056		10	05/15/12 17:38			
/anadium	0.049 mg/L	0.00010		1	05/15/12 17:38			
Zinc	0.058 mg/L	0.0050		1	05/15/12 17:38	05/17/12 23:04 05/17/12 23:04		
00.8 MET ICPMS, Dissolved		nod: EPA 200.8 Pre		hod: EP.		03/11/12 23:04	7440-00-0	
Cadmium, Dissolved	0.0014 mg/L	0.000080		1	05/14/12 13:16	05/16/12 22:40	7440 40 0	
Calcium, Dissolved	82.6 mg/L	0.10		5	05/14/12 13:16			
Chromium, Dissolved	0.017 mg/L	0.00050		1	05/14/12 13:16	05/16/12 22:43		V
lagnesium, Dissolved	19.7 mg/L	0.0050		1	05/14/12 13:16			
lickel, Dissolved	0.013 mg/L	0.00050		1	05/14/12 13:16	05/16/12 22:40		V
elenium, Dissolved	2.2 mg/L	0.0025		5		05/16/12 22:40		
otal Hardness by 2340B, issolved	288 mg/L	0.36		5	05/14/12 13:16 05/14/12 13:16	05/16/12 22:43 05/16/12 22:43	7782-49-2	-
anadium, Dissolved	0.049 mg/L	0.00010	0.000027	1	05/14/12 13:16	05/16/12 22:40	7440 62 0	
inc, Dissolved	0.057 mg/L	0.0050		1	05/14/12 13:16	05/16/12 22:40	7440-62-2	

Date: 05/30/2012 05:09 PM





ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Sample: Dup-050212-A	Lab ID: 10	191224004	Collect	ed: 05/02/1	2 13:30	Received: 05	/04/12 09:50 M	atrix: Water	·
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Me	ethod: EPA 20	00.8 Prep	aration Meth	od: EP	A 200.8			
Cadmium	0.0014 mg/l	_ (0.000080	0.000028	1	05/15/12 17:38	05/17/12 23:10	7440-43-9	
Chromium	0.016 mg/l	L	0.00050	0.000094	1	05/15/12 17:38	05/17/12 23:10	7440-47-3	
Nickel	0.013 mg/l	_	0.00050	0.000091	1	05/15/12 17:38	05/17/12 23:10	7440-02-0	
Selenium	2.2 mg/l	-	0.0025	0.0011	5	05/15/12 17:38	05/17/12 23:14		
Vanadium	0.047 mg/L	_	0.00010	0.000027	1	05/15/12 17:38			
Zinc	0.056 mg/L	-	0.0050	0.0025	1	05/15/12 17:38	05/17/12 23:10	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Me	thod: EPA 20	00.8 Prep	aration Meth	od: EP/	A 200.8			
Cadmium, Dissolved	0.0014 mg/L	_ 0	0.000080	0.000028	1	05/14/12 13:16	05/16/12 22:50	7440-43-9	
Calcium, Dissolved	83.6 mg/L	_	0.10	0.042	5	05/14/12 13:16	05/16/12 22:53	7440-70-2	V
Chromium, Dissolved	0.017 mg/L	_	0.00050	0.000094	1	05/14/12 13:16	05/16/12 22:50	7440-47-3	•
Magnesium, Dissolved	19.5 mg/L	_	0.0050	0.0019	1 -	05/14/12 13:16	05/16/12 22:50	7439-95-4	V
Nickel, Dissolved	0.013 mg/L	-	0.00050	0.000091	1	05/14/12 13:16	05/16/12 22:50		
Selenium, Dissolved	2.2 mg/L	_	0.0025	0.0011	5	05/14/12 13:16	05/16/12 22:53	7782-49-2	-
Total Hardness by 2340B, Dissolved	289 mg/L	-	0.36	0.18	5	05/14/12 13:16	05/16/12 22:53		
anadium, Dissolved	0.048 mg/L	-	0.00010	0.000027	1	05/14/12 13:16	05/16/12 22:50	7440-62-2	
inc, Dissolved	0.056 mg/L	_	0.0050	0.0025	1	05/14/12 13:16	05/16/12 22:50	7440-66-6	

Date: 05/30/2012 05:09 PM



Pace Analytical Services, Inc. 1700 Eim Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

QC Batch:

MPRP/32309

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples: 10191224001, 10191224002, 10191224003, 10191224004

METHOD BLANK: 1192495

Matrix: Water

Associated Lab Samples: 10191224001, 10191224002, 10191224003, 10191224004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium Chromium Nickel Selenium Vanadium Zinc	mg/L mg/L mg/L mg/L mg/L mg/L	<0.000028 <0.000094 <0.000091 <0.00022 <0.000027 <0.0025	0.000080 0.00050 0.00050 0.00050 0.00010		

LABORATORY CONTROL SAMPLE: 1192496

Parameter	Units	Spike Conc.	LCS Result	LCS '% Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	.08	0.080	100	85-115	
Chromium	mg/L	.08	0.080	100	85-115	
Nickel	mg/L		0.080	100	85-115	
Selenium Vanadium	mg/L	.08	0.082	102	85-115	
Zinc	mg/L	.08	0.080	100	85-115	
21116	mg/L	.08	0.084	105	85-115	

MATRIX SPIKE & MATRIX S	SPIKE DUPLICAT	E: 11924	97		1192498							
Parameter	10 Units	191087001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max RPD	Qual
Cadmium	mg/L	0.00031	.08	.08	0.077	0.076						
Chromium	mg/L	0.0013					96	95	70-130	1	20	
Nickel	•		.08	.08	0.079	0.080	97	99	70-130	2	20	
	mg/L	0.0082	.08	.08	0.086	0.086	97	97	70-130	.5	20	
Selenium	mg/L	0.027	.08	.08	0.11	0.11	98	101	70-130	2	20	
Vanadium	mg/L	1.2 ug/L	.08	.08	0.080	0.079	98			_		
Zinc	mg/L	0.043	.08					98	70-130	.7	20	
	···a, –	0.043	.UQ	.08	0.12	0.12	100	96	70 120	•		

MATRIX SPIKE SAMPLE:	1192499						
Parameter	Units	92117868003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium Chromium Nickel Selenium Vanadium Zinc	mg/L mg/L mg/L mg/L mg/L mg/L		.08 .08 .08 .08 .08	0.073 0.076 0.073 0.077 0.076 0.080	91 94 91 96 94 98	70-130 70-130 70-130 70-130 70-130 70-130	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

QC Batch:

MPRP/32308

Analysis Method:

EPA 200.8

QC Batch Method: EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples: 10191224001, 10191224002, 10191224003, 10191224004

METHOD BLANK: 1192480

Matrix: Water

Associated Lab Samples: 10191224001, 10191224002, 10191224003, 10191224004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	mg/L	<0.000028	0.000080	05/16/12 17:33	
Calcium, Dissolved	mg/L	0.011 l	0.020	05/16/12 17:33	
Chromium, Dissolved	mg/L	< 0.000094	0.00050	05/16/12 17:33	
Magnesium, Dissolved	mg/L	0.0030 I	0.0050	05/16/12 17:33	
Nickel, Dissolved	mg/L	< 0.000091	0.00050	05/16/12 17:33	
Selenium, Dissolved	mg/L	< 0.00022	0.00050	05/16/12 17:33	
Total Hardness by 2340B, Dissolved	mg/L	0.040	0.071	05/16/12 17:33	
Vanadium, Dissolved	mg/L	< 0.000027	0.00010	05/16/12 17:33	
Zinc, Dissolved	mg/L	< 0.0025	0.0050	05/16/12 17:33	

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
admium, Dissolved	mg/L	.08	0.081	101	85-115	· · · · · · · · · · · · · · · · · · ·	•
alcium, Dissolved	mg/L	1	1.1	108	85-115		
hromium, Dissolved	mg/L	.08	0.084	105	85-115		
agnesium, Dissolved	mg/L	1	1.1	105	85-115		
ickel, Dissolved	. mg/L	.08	0.086	108	85-115		
elenium, Dissolved	mg/L	.08	0.078	97	85-115		
otal Hardness by 2340B, issolved	mg/L	6.6	7.0	107	85-115		
anadium, Dissolved	mg/L	.08	0.084	105	85-115		
inc, Dissolved	mg/L	.08	0.082	103	85-115		

MATRIX SPIKE & MATRIX S	PIKE DUPLICAT	E: 11924	82		1192483							
Parameter	10 Units	190611001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	mg/L		.08	.08	0.079	0.078	99	97	70-130		20	
Calcium, Dissolved	mg/L	92400 ug/L	1	. 1	89.6	91.9	-275	-50	70-130	2		J(M1)
Chromium, Dissolved	mg/L	0.56 ug/L	.08	.08	0.082	0.082	102	101	70-130	.4	20	
Magnesium, Dissolved	mg/L	3100 ug/L	1	1	4.0	4.1	91	101	70-130	2	20	
Nickel, Dissolved	mg/L	•	.08	.08	0.085	0.084	106	105	70-130	.4	20	
Selenium, Dissolved	mg/L	<0.50 ug/L	.08	.08	0.077	0.076	95	95	70-130	.3	20	
Total Hardness by 2340B, Dissolved	mg/L	ŭ	6.6	6.6	240	246	-47	44	70-130	2	20	
/anadium, Dissolved	mg/L		80.	.08	0.083	0.083	103	103	70-130	.2	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.: 10191224

MATRIX SPIKE & MATRIX S	SPIKE DUPLICATE	: 11924	82		1192483		-				
Parameter	101 Units	90611001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD RPD	Qual
Zinc, Dissolved	mg/L		.08	.08	0.091	0.090	99	97	70-130	2 20	

MATRIX SPIKE SAMPLE:	1192484						
Parameter	Units	10191224002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	0.0015	.08	0.080	98	70-130	
Calcium, Dissolved	mg/L	81.7	1	82.8	115	70-130	
Chromium, Dissolved	mg/L	0.017	.08	0.097	100	70-130	
Magnesium, Dissolved	mg/L	19.2	1	20.2	92	70-130	
lickel, Dissolved	mg/L	0.014	.08	0.090	95	70-130	
Selenium, Dissolved	mg/L	2.2	.08	2.2	63	70-130 M	6
otal-Hardness by 2340B, Dissolved	mg/L	283	6.6	290	101	70-130	
/anadium, Dissolved	. mg/L	0.051	.08	0.13	100	70-130	
Zinc, Dissolved	mg/L	0.062	.08	0.14	101	70-130	



Pace Analytical Services, Inc. 1700 Elm Street - Suite 200 Minneapolis, MN 55414 (612)607-1700

QUALIFIERS

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M

Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

J(M1) Estimated Value. Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS)

recover

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

V Indicates that the analyte was detected in both the sample and the associated method blank.

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Revised: North Maybe Mine

Pace Project No.:

10191224

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10191224001	IA1-55-050212	EPA 200.8	MPRP/32309	EDA 200 0	10011110111
10191224002	IA1-28A-050212	EPA 200.8			ICPM/12810
10191224003		· · · · · · · · · · · · · · · · · · ·	MPRP/32309		ICPM/12810
	IA1-30A-050212	EPA 200.8	MPRP/32309	EPA 200.8	ICPM/12810
10191224004	Dup-050212-A	EPA 200.8	MPRP/32309	EPA 200.8	ICPM/12810
10191224001	IA1-55-050212	EPA 200.8	MPRP/32308	EPA 200.8	ICDM/40700
10191224002	IA1-28A-050212	EPA 200.8			ICPM/12796
10191224003			MPRP/32308	EPA 200.8	ICPM/12796
	IA1-30A-050212	EPA 200.8	MPRP/32308	EPA 200.8	ICPM/12796
10191224004	Dup-050212-A	EPA 200.8	MPRP/32308	EPA 200.8	ICPM/12796

Date: 05/30/2012 05:09 PM



CHAIN-OF-CUSTO Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1619	12	24		
Page:	1	of	1	

Required Client Information:	Required		ct Info	mation:						tion C	; ormatic	yn:	i											Pag	e:	1	of)	
Company: Agrium/Nu-West	Report To	Jan	nes.V	Villiams@a	agrium.c	om			Personal Property lies	ntion:	-	coun	ts Pa	yable	е	-										-		
Address: 3010 Conda Rd	Copy To:	Juli	e.Lind	coln@aec	om.com				Com	pany I	Name:	Nu-\	Vest	Indu	strie	es, Ir	nc.		B	REGL	JLATO	ORY	AGI	ENCY				
Soda Springs, ID. 83276			-						Addi	ess:	Ca	algary	, Alb	erta,	Car	nada	T2H	3B9	_	No.	IPDES	-	-	The Later	ND WAT	ER [DRINKING	MATER
Email To: Mitchell.Hart@agrium.com	Purchase	Order	No.:	4800058	265				Pace	Quote	No	or_04	0612	_NM	MS	w			_					CRA	- WAI			VVATER
Phone: 208-547-3935 Fax:	Project Na	ame:	Non	th Maybe	Mine			-		Project		ally He	3						-	-	Locati	-		CICA			OTHER	
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										-			-	-	_	Politiciano	Po	21122		Alberta Arms	STAT			(A.4)	1111			
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Required Client Information MATRIX	CODE	codes to left)	C=COMP)		COLL	ECTED		1_			Pre	eserva	ative	s		N/A												
DRINKING WATER WATER WASTE WATER	WT WW	code	0=0	COMPC	OSITE			No.					!		T	Т			П									
PRODUCT SOIL/SOUD	P SL	valid	RAB B	STA		COMPO	SAB	COLLECTION							1		9								(N/N)			
SAMPLE ID OIL WIPE	OL WP	(\$66	(G=GRAB			-		S	RS					-	-	est	(enclosed)								5			
(A-Z, 0-9 / ,-) OTHER	AR OT	CODE	125.0					PAT	R	-						Tes	nc								orin			
Sample IDs MUST BE UNIQUE TISSUE	TS	8	TYPE					TEM	1 E	. Se					1	8 8									5	1		
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1		MA	SAN	DATE	TIME	TIME DATE	TIME	SAMPLE	# OF CONTAINERS	Unpreserv	H ₂ SO ₄	모	Nac	Meti	Other	Analysis	Table								Residual Chlorine	Poor	Desired	la II ala II D
1 FAI-55-050212		WT	G	05/02	1/2	1445			2	Section 2019	V	\Box			7	-	5	\top				1	+	+	1	001	Project N	lo./ Lab I.D.
2 FAI-28A-050212				05/02		1425			2		-	П				Ē	X	_	1				_			002		
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						JIGNATUR	E OT SAM	rlek	. 4	10	me	~B	- U	ill	1	_	(MM	VDD/Y	ned Y): 6	05	102	2/1	12		F	S =	Sea	Sam

Table 4-1 Surface water Analyte List for April, May, June, August, September and October

Analyte	Analytical	Conta	iner Size	Container	Preservative	Holding Time	Detection	
	Method	Total	Dissolved	Material		nolaing i ime	Limit/Units	
Cadmium – total & dissolved*	EPA M200.8							
Chromium – total & dissolved*	EPA M200.8						0.1 μg/L	
Nickel – total & dissolved*	EPA M200.8			1			0.1 μg/L	
Selenium – total & dissolved*	EPA M200.8	250 ml		Polyethylene	Nitric Acid	180 Days	0.6 µg/L	
Vanadium – total & dissolved*	EPA M200.8		250 ml*				0.1 μg/L	
Zinc - total & dissolved*	EPA M200.8			9			0.2 μg/L	
Hardness	EPA SM2340B (Calculated)	- 5		Polyethylene Nitric Acid 180	180 Days	2 μg/L 2 mg/L		
pH	Field	-						
ORP	Field		-		-		standard units	
Dissolved Oxygen	Field				-		mV	
Conductivity	Field			-	-	Analyze immediately	mg/L	
Temperature	Field		-	1	-		µmhos/cm	
urbidity	Field		-		-		°C NTU	

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

µmhos/cm = micromhos per centimeter

°C = degrees Celsius

NTU = nephelometric turbidity units

Pace Analytical*

Project Manager Review:

Document Name: Sample Condition Upon Receipt Form

Document Number:

F-MN-L-213-rev.02

Revised Date: 15Feb2012 Page 1 of 1 Issuing Authority:

Pace Minnesota Quality Office

Sample Condition Client Nam	e: Agrium/Nu-West	Project # 10191224
Opon Necelpt	0	- Marie Mari
Courler: ☐ Fed Ex ☐ UPS☐ USPS☐ Clien Tracking #: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	t Pace Other	Colationalis (Color Section 1997)
Custody Seal on Cooler/Box Present: yes	no Seals intact: Tyres	no se 📥
Packing Material: Bubble Wrap Bubble I	Bags None Other	Temp Blank: Yes No
Thermometer Used 80344042 or 80512447	Type of Ice: Wet Blue None	Samples on ice, cooling process has begun
Cooler Temperature Temp should be above freezing to 6°C	Biological Tissue is Frozen: Yes No Comments:	Date and initials of person examining contents: 4 - 17
Chain of Custody Present:	∠29es □No □N/A 1.	,
Chain of Custody Filled Out:	Yes ONO ON/A 2.	
Chain of Custody Relinquished:	Yes □No □N/A 3.	
Sampler Name & Signature on COC:	ØYes □No □N/A 4.	
Samples Arrived within Hold Time:	□Y63 □No □N/A 5.	
Short Hold Time Analysis (<72hr):	□Yes □No □N/A 6.	
Rush Turn Around Time Requested:	□Yes ≹INo □N/A 7.	
Sufficient Volume:	Yes □No □N/A 8.	
prrect Containers Used:	Tyes DNo DNA 9.	
-Pace Containers Used:	TYES DNO DN/A	
Containers Intact:	Tyes ONo ON/A 10.	
Filtered volume received for Dissolved tests	□Yes □No ÆN/A 11.	
Sample Labels match COC:	EYes ONo ON/A 12.	
Includes date/time/ID/Analysis Matrix:	WI	
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	Eyes Ono On/A 13. HNO3	
All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4, HCL<2; NaOH >12)	Samp #IA1-55-05 TA1-30A-05021	0212 72, IAI-28A-050212/2 272, Dup 050212-A 72
Exceptions: VOA,Coliform, TOC, Oll and Grease, WI-DRO (water)	IVee Me	Lot # of added preservative
Headspace in VOA Vials (>6mm):	□Yes □No ☑N/A 14.	-
Trip Blank Present:	□Yes ☑No □N/A 15.	
Trip Blank Custody Seals Present	□Yes □No \QMA	
Pace Trip Blank Lot # (if purchased):		
Client Notification/ Resolution:		Field Data Required? Y / N
Person Contacted:		
Comments/ Resolution:		
		(

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Date:

DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services, Inc.

Pace Project ID:

10194527

Data Validator:

Chris Davis

Date Validated:

December 5, 2012

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters

and Methods:

Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8
 Dissolved Cations (calcium, magnesium); 200.8

3. Hardness; SM2340B

Sample Identifications:

IA1-30A-060512

IA1-28A-060512 IA1-55-060512

DUP-060512-A (field duplicate for IA1-28A-060512)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected for all laboratory reagent blanks (LRBs).

Qualification: No qualification was necessary.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable. Note that the percent recoveries (%Rs) of 145% and 490% for dissolved calcium in the matrix spike (MS)/matrix spike duplicate (MSD), -2% for dissolved selenium in the MS, and 152% in the MS analyses of sample IA1-30A-060512 (10194527-001) exceeded the 75-125%R control limits for metals. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. As the sample results exceeded four times the spike, no qualifiers are applicable.

6. OVERALL ASSESSMENT

No other issues were identified.





July 03, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: North Maybe Mine

Pace Project No.: 10194527

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on June 07, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Enclosures

cc: Cindy Emmons, Norwest Corporation Jámes Williams, Agrium





CERTIFICATIONS

Project:

North Maybe Mine

Pace Project No.:

10194527

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #: MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: 959
Idaho Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace Montana Certification #: MT CERT0092 Nevada Certification #: MN_00064 Nebraska Certification #: Pace New Jersey Certification #: MN-002 New Mexico Certification #: Pace New York Certification #: 11647 North Carolina Certification #: 530 North Dakota Certification #: R-036 North Dakota Certification #: R-036A Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921 Oklahoma Certification #: 9507 Oregon Certification #: MN200001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification Tennessee Certification #: 02818 Texas Certification #: T104704192 Washington Certification #: C754 Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project:

North Maybe Mine

Pace Project No.:

10194527

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10194527001	IA1-30A-060512	Water	06/05/12 13:05	06/07/12 10:10
10194527002	IA1-28A-060512	Water	06/05/12 13:20	06/07/12 10:10
10194527003	IA1-55-060512	Water	06/05/12 13:40	06/07/12 10:10
10194527004	DUP-060512-A	Water	06/05/12 12:45	06/07/12 10:10



Pace Analytical Services, Inc. 1700 Elm Street - Suite 200

Minneapolis, MN 55414

(612)607-1700

SAMPLE ANALYTE COUNT

Project:

North Maybe Mine

Pace Project No.:

10194527

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10194527001	IA1-30A-060512	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
10194527002	IA1-28A-060512	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0194527003	IA1-55-060512	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
10194527004 DUP-060512-A	EPA 200.8	RJS	6	PASI-M	
	EPA 200.8	RJS	9	PASI-M	



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No .:

10194527

Method:

EPA 200.8

Descrip

Description: 200.8 MET ICPMS

Client:

Agrium- Nu-West

Date:

July 03, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.

• IA1-30A-060512 (Lab ID: 10194527001)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/32866

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10194527001,10194550007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

• MS (Lab ID: 1213277)

Selenium

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10194527

Method:

EPA 200.8

Description: 200.8 MET ICPMS Client:

Agrium- Nu-West

Date:

July 03, 2012

Analyte Comments:

QC Batch: MPRP/32866

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1213277)
 - Selenium
- MSD (Lab ID: 1213278)
 - Selenium

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10194527

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West

Date:

July 03, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.

· IA1-30A-060512 (Lab ID: 10194527001)

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/32938

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10194527001,10194764004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1216100)
 - · Calcium, Dissolved
 - · Selenium, Dissolved
- MSD (Lab ID: 1216101)
 - · Calcium, Dissolved
- · Magnesium, Dissolved

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 1216102)
 - · Calcium, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10194527

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West

Date:

July 03, 2012

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10194527

Sample: IA1-30A-060512	Lab ID: 101	94527001 Collect	ed: 06/05/1	2 13:05	Received: 06.	/07/12 10:10 M	atrix: Water	
Parameters	Results U	Inits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Meti	nod: EPA 200.8 Prep	paration Met	nod: EP	A 200.8			
Cadmium	0.0013 mg/L	0.000080	0.000028	1	06/12/12 12:21	06/19/12 23:58	7440-43-9	
Chromium	0.0071 mg/L	0.00050	0.000094	1	06/12/12 12:21	06/19/12 23:58	7440-47-3	
Nickel	0.012 mg/L	0.00050	0.000091	1	06/12/12 12:21	06/19/12 23:58		
Selenium	1.8 mg/L	0.0025	0.0011	5	06/12/12 12:21	06/20/12 00:12		M1
Vanadium	0.036 mg/L	0.00010	0.000027	1	06/12/12 12:21	06/19/12 23:58		
Zinc	0.045 mg/L	0.0050	0.0025	1	06/12/12 12:21	06/19/12 23:58		
200.8 MET ICPMS, Dissolved	Analytical Meth	od: EPA 200.8 Prep	aration Meth	od: EP/	A 200.8			
Cadmium, Dissolved	0.0013 mg/L	0.000080	0.000028	1	06/13/12 13:02	06/19/12 19:12	7440-43-9	
Calcium, Dissolved	101 mg/L	0.10	0.042	5	06/13/12 13:02	06/19/12 19:27		M1
Chromium, Dissolved	0.0073 mg/L	0.00050	0.000094	1	06/13/12 13:02	06/19/12 19:12		
Magnesium, Dissolved	20.8 mg/L	0.0050	0.0019	1	06/13/12 13:02	06/19/12 19:12	_	M1
Nickel, Dissolved	0.012 mg/L	0.00050	0.000091	1	06/13/12 13:02	06/19/12 19:12		
Selenium, Dissolved	1.9 mg/L	0.0025	- 0.0011	5	06/13/12 13:02	06/19/12 19:27		M1
Total Hardness by 2340B, Dissolved	337 mg/L	0.36	0.18	5	06/13/12 13:02	06/19/12 19:27	., 32 10 2	****
anadium, Dissolved	0.039 mg/L	0.00010	0.000027	1	06/13/12 13:02	06/19/12 19:12	7440-62-2	
inc, Dissolved	0.048 mg/L	0.0050	0.0025	1	06/13/12 13:02	06/19/12 19:12		



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ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10194527

Sample: IA1-28A-060512	Lab ID: 10	194527002	Collect	ed: 06/05/1	2 13:20	Received: 06	/07/12 10:10 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Me	thod: EPA 20	0.8 Prep	paration Meth	nod: EP/	A 200.8			
Cadmium	0.0019 mg/L	. 0	.000080	0.000028	1	06/12/12 12:21	06/19/12 23:40	7440-43-9	
Chromium	0.0076 mg/L		0.00050	0.000094	1	06/12/12 12:21	06/19/12 23:40		
Nickel	0.015 mg/L		0.00050	0.000091	1	06/12/12 12:21	06/19/12 23:40	-	
Selenium	1.7 mg/L		0.0025	0.0011	5	06/12/12 12:21	06/20/12 23:23		
Vanadium	0.044 mg/L	(0.00010	0.000027	1	06/12/12 12:21	06/19/12 23:40		
Zinc	0.064 mg/L		0.0050	0.0025	1	06/12/12 12:21	06/19/12 23:40		
200.8 MET ICPMS, Dissolved	Analytical Met	thod: EPA 20	0.8 Prep	aration Meth	nod: EPA	A 200.8			
Cadmium, Dissolved	0.0017 mg/L	0.	.000080	0.000028	1	06/13/12 13:02	06/19/12 19:31	7440-43-9	
Calcium, Dissolved	97.4 mg/L		0.10	0.042	5	06/13/12 13:02			
Chromium, Dissolved	0.0074 mg/L	(0.00050	0.000094	1	06/13/12 13:02	06/19/12 19:31		
Magnesium, Dissolved	20.3 mg/L	•	0.0050	0.0019	1	06/13/12 13:02			
Nickel, Dissolved	0.015 mg/L	(0.00050	0.000091	1	06/13/12 13:02	06/19/12 19:31	7440-02-0	
Selenium, Dissolved	1.9 mg/L		0.0025	0.0011	5	06/13/12 13:02		7782-49-2	
Total Hardness by 2340B, Dissolved	327 mg/L		0.36	0.18	5	06/13/12 13:02	06/19/12 19:36		
Vanadium, Dissolved	0.044 mg/L	C	0.00010	0.000027	1	06/13/12 13:02	06/19/12 19:31	7440-62-2	
Zinc, Dissolved	0.065 mg/L		0.0050	0.0025	1	06/13/12 13:02		7440-66-6	

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REPORT OF LABORATORY ANALYSIS





ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10194527

Sample: IA1-55-060512	Lab ID: 10194	527003 Collect	ed: 06/05/1	2 13:40	Received: 06	/07/12 10:10 M	atrix: Water	
Parameters	Results Unit	s PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method	I: EPA 200.8 Prep	aration Meth	nod: EPA	A 200.8			
Cadmium	0.0019 mg/L	0.000080	0.000028	1	06/12/12 12:21	06/19/12 23:45	7440-43-9	
Chromium	0.0072 mg/L	0.00050	0.000094	1	06/12/12 12:21	06/19/12 23:45	7440-47-3	
Nickel	0.017 mg/L	0.00050	0.000091	1	06/12/12 12:21	06/19/12 23:45	7440-02-0	
Selenium	2.0 mg/L	0.0025	0.0011	5	06/12/12 12:21	06/20/12 23:28	7782-49-2	
Vanadium	0.041 mg/L	0.00010	0.000027	1	06/12/12 12:21	06/19/12 23:45	7440-62-2	
Zinc	0.080 mg/L	0.0050	0.0025	1	06/12/12 12:21	06/19/12 23:45	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method	: EPA 200.8 Prep	aration Meth	od: EP/	A 200.8			
Cadmium, Dissolved	0.0021 mg/L	0.000080	0.000028	1	06/13/12 13:02	06/19/12 19:41	7440-43-9	
Calcium, Dissolved	102 mg/L	0.10	0.042	5	06/13/12 13:02	06/19/12 19:46	7440-70-2	
Chromium, Dissolved	0.0072 mg/L	0.00050	0.000094	1	06/13/12 13:02	06/19/12 19:41	7440-47-3	
Magnesium, Dissolved	. 20.8 mg/L	0.0050	0.0019	1	06/13/12 13:02	06/19/12 19:41	7439-95-4	
Nickel, Dissolved	0.017 mg/L	0.00050	0.000091	1	06/13/12 13:02	06/19/12 19:41	7440-02-0	
Selenium, Dissolved -	1.9 mg/L	0.0025	0.0011	5	06/13/12 13:02	06/19/12 19:46	7782-49-2	
Total Hardness by 2340B, Dissolved	341 mg/L	0.36	0.18	5	06/13/12 13:02	06/19/12 19:46		
Yanadium, Dissolved	0.042 mg/L	0.00010	0.000027	1	06/13/12 13:02	06/19/12 19:41	7440-62-2	
inc, Dissolved	0.082 mg/L	0.0050	0.0025	1	06/13/12 13:02	06/19/12 19:41	7440-66-6	
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ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10194527

Sample: DUP-060512-A	Lab ID: 10194	527004 Collec	cted: 06/05/1	2 12:45	Received: 06	6/07/12 10:10 N	Matrix: Water	
Parameters	Results Unit	its PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method	d: EPA 200.8 Pre	paration Met	hod: EF	A 200.8			
Cadmium Chromium	0.0018 mg/L 0.0076 mg/L	0.000080 0.00050	0.000028	1	06/12/12 12:21			
Nickel Selenium	0.015 mg/L 1.8 mg/L	0.00050 0.0025	0.000091	1 5	06/12/12 12:21 06/12/12 12:21	06/19/12 23:49	7440-02-0	
Vanadium Zinc	0.042 mg/L 0.064 mg/L	0.00010 0.0050	0.000027	1	06/12/12 12:21 06/12/12 12:21 06/12/12 12:21	06/19/12 23:49	7440-62-2	
200.8 MET ICPMS, Dissolved	Analytical Method:	:: EPA 200.8 Prer		10d: EP/		00/19/12 23:49	7440-66-6	
Cadmium, Dissolved Calcium, Dissolved Chromium, Dissolved	0.0018 mg/L 99.9 mg/L	0.000080 0.10	0.000028	1 5	06/13/12 13:02 06/13/12 13:02	2-11-1		
Chromium, Dissolved Aagnesium, Dissolved lickel, Dissolved	0.0079 mg/L 21.1 mg/L	0.00050 0.0050	0.000094		06/13/12 13:02 06/13/12 13:02	06/19/12 20:00	7440-47-3	
elenium, Dissolved otal Hardness by 2340B,	0.015 mg/L 1.9 mg/L 336 mg/L	0.00050 0.0025 0.36	0.000091	5	06/13/12 13:02 06/13/12 13:02	06/19/12 20:00 06/19/12 20:05	7440-02-0	
issolved anadium, Dissolved inc, Dissolved	0.045 mg/L 0.067 mg/L	0.00010 0.0050	0.18 0.000027 0.0025	1		06/19/12 20:05 06/19/12 20:00 06/19/12 20:00		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10194527

QC Batch:

MPRP/32866

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples:

10194527001, 10194527002, 10194527003, 10194527004

METHOD BLANK: 1213275

Matrix: Water

Associated Lab Samples: 10194527001, 10194527002, 10194527003, 10194527004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	mg/L	<0.000028	0.000080	06/21/12 06:53	
Chromium	mg/L	< 0.000094	0.00050	06/21/12 06:53	
Nickel	mg/L	< 0.000091	0.00050	06/21/12 06:53	
Selenium	mg/L	< 0.00022	0.00050	06/21/12 06:53	
Vanadium	mg/L	< 0.000027	0.00010	06/21/12 06:53	
Zinc	mg/L	< 0.0025	0.0050	06/21/12 06:53	

LABORATORY CONTROL SAI	MPLE: 1213276			<u> </u>		
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	.08	0.081	101	85-115	
hromium	mg/L	.08	0.081	101	85-115	
Nickel	mg/L	.08	0.083	103	85-115	
Selenium	mg/L	.08	0.080	100	85-115	
√anadium	mg/L	.08	0.079	99	85-115	
Zinc	mg/L	.08	0.081	101	85-115	

MATRIX SPIKE & MATRIX	SPIKE DUPLICAT	E: 12132	77		1213278							
Parameter	10 [.] Units	194527001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	B BD	Max RPD	Qual
~												- Guai
Cadmium	mg/L	0.0013	.08	.08	0.082	0.082	100	101	70-130	.4	20	
Chromium	mg/L	0.0071	.08	.08	0.088	0.085	101	97	70-130	4	20	
Nickel	mg/L	0.012	.08	.08	0.091	0.089	100	97	70-130	3	20	
Selenium	mg/L	1.8	.08	.08	2.0	1.9	152	97	70-130	2	20	E,M1
Vanadium	mg/L	0.036	.08	.08	0.12	0.11	103	97	70-130	4	20	·
Zinc	mg/L	0.045	.08	.08	0.13	0.12	101	98	70-130	2	20	

MATRIX SPIKE SAMPLE:	1213279						
Parameter	Units	10194550007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	<0.000028	.08	0.083	104	70-130	•
Chromium	mg/L	0.0011	.08	0.081	100	70-130	
Nickel	mg/L	0.0011	.08	0.081	100	70-130	
Selenium	mg/L	0.00044J	.08	0.077	96	70-130	
Vanadium	mg/L	1.6 ug/L	.08	0.081	99	70-130	
Zinc	mg/L	0.0046J	.08	0.087	103	70-130	

Date: 07/03/2012 03:33 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10194527

QC Batch:

MPRP/32938

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

10194527001, 10194527002, 10194527003, 10194527004

METHOD BLANK: 1216098

Matrix: Water

Associated Lab Samples: 10194527001, 10194527002, 10194527003, 10194527004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	mg/L	<0.000028	0.000080	06/19/12 19:03	
Calcium, Dissolved	mg/L	< 0.0083	0.020	06/19/12 19:03	
Chromium, Dissolved	mg/L	<0.000094	0.00050	06/19/12 19:03	
Magnesium, Dissolved	mg/L	< 0.0019	0.0050	06/19/12 19:03	
Nickel, Dissolved	mg/L	<0.000091	0.00050	06/19/12 19:03	
Selenium, Dissolved	mg/L	<0.00022	0.00050	06/19/12 19:03	
Total Hardness by 2340B, Dissolved	mg/L	<0.036	0.071	06/19/12 19:03	
Vanadium, Dissolved	mg/L	< 0.000027	0.00010	06/19/12 19:03	
Zinc, Dissolved	mg/L	<0.0025	0.0050	06/19/12 19:03	

LABORATORY	CONTROL	SAMPLE:	1216099
	CONTROL	SAME LE.	1210099

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	.08	0.084	105	85-115	
Calcium, Dissolved	mg/L	1	1.0	101	85-115	
Chromium, Dissolved	mg/L	.08	0.082	102	85-115	
Magnesium, Dissolved	mg/L	1	1.0	100	85-115	
Nickel, Dissolved	mg/L	.08	0.078	98	85-115	
Selenium, Dissolved	mg/L	.08	0.080	100	85-115	
Total Hardness by 2340B, Dissolved	mg/L	6.6	6.6	100	85-115	
Vanadium, Dissolved	mg/L	.08	0.084	105	85-115	•
Zinc, Dissolved	mg/L	.08	0.085	106	85-115	

MATRIX SPIKE & MATRIX SF	PIKE DUPLICAT	E: 12161	00		1216101							
Parameter	10 Units	194527001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max	01
								<u>.</u>			RPD	Qual
Cadmium, Dissolved	mg/L	0.0013	.08	.08	0.084	0.089	104	109	70-130	5	20	
Calcium, Dissolved	mg/L	101	1	1	102	106	145	490	70-130	3	20	M1
Chromium, Dissolved	mg/L	0.0073	.08	.08	0.088	0.092	100	106	70-130	5	20	
Magnesium, Dissolved	mg/L	20.8	1	1	22.0	23.2	129	246	70-130	5	20	M1
Nickel, Dissolved	mg/L	0.012	.08	.08	0.088	0.091	95	99	70-130	4	20	
Selenium, Dissolved	mg/L	1.9	.08	.08	1.9	2.0	-2	124	70-130	5	_	M1
Total Hardness by 2340B, Dissolved	mg/L	337	6.6	6.6	346	359	135	338	70-130	4	20	
Vanadium, Dissolved	mg/L	0.039	.08	.08	0.12	0.13	102	110	70-130	5	20	
Zinc, Dissolved	mg/L	0.048	.08	.08	0.13	0.13	103	107	70-130	2	20	

Date: 07/03/2012 03:33 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10194527

MATRIX SPIKE SAMPLE:	1216102					,	·
Parameter	Units	10194764004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	ND	.08	0.078	98	70-130	
Calcium, Dissolved	mg/L	22.4	1	25.6	316	70-130	M6
Chromium, Dissolved	mg/L	ND	.08	0.075	94	70-130	
Magnesium, Dissolved	mg/L	4.3	1	5.5	119	70-130	
Nickel, Dissolved	mg/L	ND	.08	0.076	95	70-130	
Selenium, Dissolved	mg/L	ND	.08	0.077	96	70-130	
Fotal Hardness by 2340B, Dissolved	mg/L	73500 ug/L	6.6	86.3	193	70-130	
Vanadium, Dissolved	mg/L	ND	.08	0.076	95	70-130	
Zinc, Dissolved	mg/L	ND	.08	0.090	105	70-130	



QUALIFIERS

Project:

North Maybe Mine

Pace Project No.:

10194527

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M

Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded OC limits. Both accounted based on light and an include the content of the con

Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

Date: 07/03/2012 03:33 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

North Maybe Mine

Pace Project No.:

10194527

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10194527001	IA1-30A-060512	EPA 200.8	MPRP/32866	EPA 200.8	ICPM/13036
10194527002	IA1-28A-060512	EPA 200.8	MPRP/32866	EPA 200.8	ICPM/13036
10194527003	IA1-55-060512	EPA 200.8	MPRP/32866	EPA 200.8	ICPM/13036
10194527004	DUP-060512-A	EPA 200.8	MPRP/32866	EPA 200.8	ICPM/13036
10194527001	IA1-30A-060512	EPA 200.8	MPRP/32938	EPA 200.8	ICPM/13028
10194527002	IA1-28A-060512	EPA 200.8	MPRP/32938	EPA 200.8	ICPM/13028
10194527003	IA1-55-060512	EPA 200.8	MPRP/32938	EPA 200.8	ICPM/13028
10194527004	DUP-060512-A	EPA 200.8	MPRP/32938	EPA 200.8	ICPM/13028

RUSH

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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	Soda Springs, ID. 83276								Addres	s:	Calg	ary, A	Albert	a, Ca	nada	T2H	1 3B9			PDES			UND V	WATER		DELLEGIAL		
Email T	o: Mitchell.Hart@agrium.com	Purchase (Order No.	480005	8265				Pace Qu Reference		Nor	0406	12_N	MM :	sw		-	\dashv	_ ·					VALER		DRINKING	WATER	
Phone:	208-547-3935 Fax:	Project Na	me: No	orth Maybe	e Mine	-		_	Pace Pro	oject	Sally	/ Hein	ie -					\dashv			_	RCR		"		OTHER		
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ITEM#			MATRIX CODE SAMPLE TYPE	DATE	TIME	TIME	TIME	SAMPLE	# OF CONTAINERS	Unpreserved H,SO ₄	SON F	ROH	Na ₂ S ₂ O ₃ Methanol	Other	Analysis	Table 4-1			. .					Residual Chlorine (Y/N)				
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3	IAI-55-060512			06/05		1340		7	2	+-	1-1	†+		+	K	+	+-	-			$\dashv \dashv$		┵				922	\leftarrow
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		: .					of SAMPLE				BU	_	l:			DATE (MM/E	Signe	id):	<u> </u>				Temp In	Received on	8	Custody Sealed Cool (Y/N)	eamples In (Y/N)	

Table 4-1 Surface water Analyte List for April, May, June, August, September and October

Analyte	Analytical	Contai	ner Size	Container	Preservative	Holding Time	Detection
	Method	Total	Dissolved	Material			Limit/Units
Cadmium – total & dissolved*	EPA M200.8						0.1 μg/L
Chromium – total & dissolved*	EPA M200.8]					0.1 μg/L
Nickel – total & dissolved*	EPA M200.8	250 ml		Dolyothylono	Nitric Acid	190 Dave	0.6 µg/L
Selenium – total & dissolved*	EPA M200.8	230 1111	0501*	Polyethylene	NILIIC ACIO	180 Days	0.1 µg/L
Vanadium – total & dissolved*	EPA M200.8		250 ml*				0.2 μg/L
Zinc – total & dissolved*	EPA M200.8						2 μg/L
Hardness	EPA SM2340B (Calculated)	-		Polyethylene	Nitric Acid	180 Days	2 mg/L
рН	Field	-	-	<u>-</u>	_		standard units
ORP	Field	-			•		mV
Dissolved Oxygen	Field	-	-		-	Anakaa immadiatak	mg/L
Conductivity	Field	_	- :-	-	-	Analyze immediately	µmhos/cm
Temperature	Field		-	-	•		°C
Turbidity	Field	1 -	-	-	-		NTU

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

µmhos/cm = micromhos per centimeter

°C = degrees Celsius NTU = nephelometric turbidity units

ace Analytical®

Document Name: Sample Condition Upon Receipt Form

Document Number: F-MN-L-213-rev.02 Revised Date: 15Feb2012 Page 1 of 1
Issuing Authority:

Pace Minnesota Quality Office

Note: Whenever there is a discrepancy affecting North Carolin Office (i.e. out of hold, incorrect preservative; out of temp, incorrect preservative; out of tem	na compliance sample orrect containers)	s, a copy of this form will be sent to the N	orth Carolina DEHNR Certification
Project Manager Review:		Da	
Comments/ Resolution:			
Person Contacted:	Date/	ime:	
Client Notification/ Resolution:		Field Data	Required? Y / N
Pace Trip Blank Lot # (if purchased):			
	□Yes □No □N/A		
Trip Blank Present: Trip Blank Custody Seals Present	TYPES THE THE	15.	
Headspace in VOA Vials (>6mm):	□Yes □No □N/A		
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)		completed C, w preservativ	е
Eventilans VOA Californ TOO O'	□Yes ⊠No	Initial when Lot # of ad	
compliance.with.EPA recommendation(HNO3, H2SO4, HCL<2; NaOH >12)	Yes-ENO-EN/A	384-0605122/	DUPO60512-A %
All containers needing preservation are found to be in		Samp# 30A-060512 3/3	
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	Yes DNo DN/A	13. G H28	NaOH HCI
-Includes date/time/ID/Analysis Matrix:	WT		
Sample Labels match COC:	Tyes DNo DN/A		
Filtered volume received for Dissolved tests	□Yes □No □NIA		
Containers Intact:	Thes DNo DN/A	10	
-Pace Containers Used:	LYes ONO ON/A		
Correct Containers Used:	ØYes □No □N/A		
Sufficient Volume:	ØYes □No □N/A		
Rush Turn Around Time Requested:	Dives DNo DNIA		
Short Hold Time Analysis (<72hr):	□Yes □No □NIA		
Samples Arrived within Hold Time:	Myes DNo DN/A		
Sampler Name & Signature on COC:	Yes DNo DNA		
Chain of Custody Relinquished:	Tes One Only		
Chain of Custody Filled Out:	EYes DNo DN/		The second second
Chain of Custody Present:	Yes ONo ON/		
Cooler Temperature 3,5 Temp should be above freezing to 6°C	Biological Tissu	Ols Frozen: Yes No Comments:	and Initials of person examining tents:
Thermometer Used 80344042 or 80512447	Type of Ice: We		on ice, cooling process has begun
Packing Material: Bubble Wrap Bubble B	* v * .		llank: Yes No
	× *	s Intact: Ves no	1
Tracking #: 999266522016 Custody Seal on Cooler/Box Present: Yyes			dzkoji (Dieja) (DEja). dzkoji (Keja)
Courier: Fed Ex UPS USPS Client	Commercial [Pace Other	Qolon:1
opon recoupt	V		
Upon Receipt Client Name	: Agrium//	lu-West Project	t# 10194(2)

DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services. Inc.

Pace Project ID:

10198100

Data Validator:

Chris Davis

Date Validated:

December 5, 2012

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters and Methods:

- 1. Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8
- 2. Total and Dissolved Cations (calcium, magnesium, potassium, and sodium); 200.8
- 3. Hardness; SM2340B
- 4. Alkalinity; SM2320B (total, carbonate, bicarbonate, and hydroxide alkalinity as calcium carbonate)
- 5. Anions; 300.0 (chloride and sulfate)
- 6. Total Anions, Total Cations, and Cation/Anion Balance; SM1030E

Sample Identifications:

IA1-30A-070512

IA1-28A-070512

IA1-55-070512

DUP-070512-A (field duplicate for IA1-55-070512)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected, except laboratory reagent blanks (LRBs) or continuing calibration

blanks (CCBs) at the following maximum concentrations in the specified batches

for:

Dissolved calcium at 0.013 mg/L (LRB MPRP/33655)

Dissolved magnesium at 0.0049 mg/L (LRB MPRP/33655)

Dissolved hardness at 0.052 mg/L (LRB MPRP/33655)

Total potassium at 0.012 mg/L (LRB MPRP/33661)

Qualification: No qualification was necessary. All sample results were greater than 10-times the concentrations in the associated blanks.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable.

6. OVERALL ASSESSMENT

No other issues were identified.





July 30, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: North Maybe Mine

Pace Project No.: 10198100

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on July 10, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Saly-1600

Enclosures

cc: Cindy Emmons, Norwest Corporation James Williams; Agrium





CERTIFICATIONS

Project:

North Maybe Mine

Pace Project No.:

10198100

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414 A2LA Certification #: 2926.01 Alaska Certification #: UST-078 Alaska Certification #MN00064 Arizona Certification #: AZ-0014 Arkansas Certification #: 88-0680 California Certification #: 01155CA EPA Region 8 Certification #: Pace Florida/NELAP Certification #: E87605 Georgia Certification #: 959 Idaho Certification #: MN00064 Illinois Certification #: 200011 Iowa Certification #: 368 Kansas Certification #: E-10167 Louisiana Certification #: 03086 Louisiana Certification #: LA080009 Maine Certification #: 2007029 Maryland Certification #: 322 Michigan DEQ Certification #: 9909 Minnesota Certification #: 027-053-137 Mississippi Certification #: Pace

Montana Certification IDs

602 South 25th Street, Billings, MT 59101 EPA Region 8 Certification #: 8TMS-Q Idaho Certification #: MT00012 Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL 101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: 02818
Texas Certification #: T104704192
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: 999407970

Montana Certification #: MT CERT0040 NVLAP Certification #: 101292-0 Minnesota Dept of Health Certification #: 030-999-442

REPORT OF LABORATORY ANALYSIS

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Page 2 of 25



SAMPLE SUMMARY

Project:

North Maybe Mine

Pace Project No.:

10198100

Lab ID	Sample ID	Matrix	Date Collected	Data Bassinad	
			- Date Collected	Date Received	
10198100001	IA1-30A-070512	Water	07/05/12 10:45	07/10/12 10:13	
10198100002	IA1-28A-070512	Water	07/05/12 10:55	07/10/12 10:13	
10198100003	IA1-55-070512	Water	07/05/12 11:15	07/10/12 10:13	
10198100004	DUP-070512-A	Water	07/05/12 11:30	07/10/12 10:13	





SAMPLE ANALYTE COUNT

Project:

North Maybe Mine

Pace Project No.:

10198100

ab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10198100001	IA1-30A-070512	EPA 200.8	RR1	11	PASI-M
		EPA 200.8	RR1	11	PASI-M
		EPA 300.0	MFP	2	PASI-MT
		SM 2320B	ECB	3	PASI-M
		SM 1030E	СВ	3	PASI-M
10198100002	IA1-28A-070512	EPA 200.8	RR1	11	PASI-M
		EPA 200.8	RR1	11	PASI-M
		EPA 300.0	MFP	2	PASI-MT
		SM 2320B	ECB	3	PASI-M
		SM 1030E	СВ	3	PASI-M
10198100003	IA1-55-070512	EPA 200.8	RR1	11	PASI-M
		EPA 200.8	RR1	· 11	PASI-M
	-	EPA 300.0	MFP	2	PASI-MT
		SM 2320B	ECB	3	PASI-M
		SM 1030E	СВ	3	PASI-M
0198100004	DUP-070512-A	EPA 200.8	RR1	11	PASI-M
		EPA 200.8	RR1	11	PASI-M
		EPA 300.0	MFP	2	PASI-MT
		SM 2320B	ECB	3	PASI-M
		SM 1030E	CB	3	PASI-M

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

EPA 200.8 Description: 200.8 MET ICPMS

Client:

Agrium- Nu-West

Date:

July 30, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.

- DUP-070512-A (Lab ID: 10198100004)
- IA1-28A-070512 (Lab ID: 10198100002)
- IA1-30A-070512 (Lab ID: 10198100001)
- IA1-55-070512 (Lab ID: 10198100003)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

nitial Calibrations (including MS Tune as applicable):

Il criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/33661

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10198100001,10198274005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1238413)
 - Calcium
 - Magnesium
 - Sodium
- MSD (Lab ID: 1238414)
 - Calcium
 - Magnesium

REPORT OF LABORATORY ANALYSIS

Page 5 of 25



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

EPA 200.8

Client:

Description: 200.8 MET ICPMS

Date:

Agrium- Nu-West July 30, 2012

Additional Comments:

Analyte Comments:

QC Batch: MPRP/33661

- B: Analyte was detected in the associated method blank.
 - DUP-070512-A (Lab ID: 10198100004)
 - Potassium
 - IA1-28A-070512 (Lab ID: 10198100002)
 - Potassium
 - IA1-30A-070512 (Lab ID: 10198100001)
 - Potassium
 - IA1-55-070512 (Lab ID: 10198100003)
 - Potassium
- E: Analyte concentration exceeded the calibration range. The reported result is estimated.
 - MS (Lab ID: 1238413)
 - Calcium
 - Magnesium
 - MSD (Lab ID: 1238414)
 - Calcium
 - Magnesium

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No .:

10198100

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West

Date:

July 30, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.

- DUP-070512-A (Lab ID: 10198100004)
- · IA1-28A-070512 (Lab ID: 10198100002)
- IA1-30A-070512 (Lab ID: 10198100001)
- IA1-55-070512 (Lab ID: 10198100003)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

nitial Calibrations (including MS Tune as applicable):

Il criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/33655

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10198138001,10198274005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1238383)
 - · Calcium, Dissolved
 - Magnesium, Dissolved
 - Sodium, Dissolved
- MS (Lab ID: 1238384)
 - · Calcium, Dissolved
 - Magnesium, Dissolved
- MSD (Lab ID: 1238385)

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No .:

10198100

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West

Date:

July 30, 2012

QC Batch: MPRP/33655

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10198138001,10198274005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- · Calcium, Dissolved
- · Magnesium, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/33655

- B: Analyte was detected in the associated method blank.
 - DUP-070512-A (Lab ID: 10198100004)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
 - IA1-28A-070512 (Lab ID: 10198100002)
 - · Calcium, Dissolved
 - Magnesium, Dissolved
 - IA1-30A-070512 (Lab ID: 10198100001)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
 - IA1-55-070512 (Lab ID: 10198100003)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
- E: Analyte concentration exceeded the calibration range. The reported result is estimated.
 - · MS (Lab ID: 1238383)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
 - MSD (Lab ID: 1238385)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

EPA 300.0 Description: 300.0 IC Anions

Client:

Agrium- Nu-West

Date:

July 30, 2012

General Information:

4 samples were analyzed for EPA 300.0. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MT/9411

1M: Centrifuged prior to analysis.

- BLANK (Lab ID: 1241210)
 - Chloride
 - Sulfate
- LCS (Lab ID: 1241211)
 - Chloride
 - Sulfate

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

EPA 300.0 Description: 300.0 IC Anions

Client:

Agrium- Nu-West

Date:

July 30, 2012

Analyte Comments:

QC Batch: MT/9411

2M: Sample was centrifuged due to particulate contamination.

• IA1-28A-070512 (Lab ID: 10198100002)

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

· LCS (Lab ID: 1241174)

• Chloride

Chloride

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

SM 2320B

Client:

Description: 2320B Alkalinity Agrium- Nu-West

Date:

July 30, 2012

General Information:

4 samples were analyzed for SM 2320B. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

dditional Comments:



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10198100

Method:

SM 1030E

Description: Cation/Anion Balance (Mining)

Client:

Agrium- Nu-West

Date:

July 30, 2012

General Information:

4 samples were analyzed for SM 1030E. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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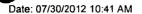
Project:

North Maybe Mine

Pace Project No.:

10198100

Sample: IA1-30A-070512	Lab ID:	1019810000	1 Collect	ed: 07/05/1	2 10:45	Received: 07	/10/12 10:13 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical	Method: EPA	200.8 Prep	aration Meth	nod: EP	A 200.8			
Cadmium	0.00081 n	ng/L	0.000080	0.000028	1	07/12/12 13:07	07/20/12 23:11	7440-43-9	
Calcium	103 n	ng/L	0.10	0.050	5	07/12/12 13:07			
Chromium	0.0056 n	ng/L	0.00050	0.000094	1	07/12/12 13:07	07/20/12 23:11	7440-47-3	
Magnesium	23.1 n	ng/L	0.025	0.012	5	07/12/12 13:07	07/20/12 23:15	7439-95-4	
Nickel	0.0090 n	ng/L	0.00050	0.00015	1	07/12/12 13:07	07/20/12 23:11	7440-02-0	
Potassium	1.7 n	ng/L	0.020	0.0052	1	07/12/12 13:07	07/20/12 23:11	7440-09-7	В
Selenium	1.8 m	ng/L	0.0025	0.00047	5		07/20/12 23:15		
Sodium	5.2 m	ng/L	0.050	0.010	1		07/20/12 23:11		
Total Hardness by 2340B	352 m	ng/L	0.36	0.18	5		07/20/12 23:15		
/anadium	0.028 m	ng/L	0.00010	0.000037	1	07/12/12 13:07	07/20/12 23:11	7440-62-2	
Zinc	0.024 m	ng/L	0.0050	0.0010	1		07/20/12 23:11		
200.8 MET ICPMS, Dissolved	Analýtical	Method: EPA	200.8 Prep	aration Meth	od: EP	A 200.8		2	
Cadmium, Dissolved	0.00068 m	ng/L	0.000080	0.000028	1	07/13/12 10:02	-07/22/12 14:49	7440-43-9	
Calcium, Dissolved	111 m	ng/L	0.20	0.10	10		07/22/12 14:53		В
Chromium, Dissolved	0.0055 m	ig/L	0.00050	0.000094	1		07/22/12 14:49		J
agnesium, Dissolved	23.5 m	ig/L	0.050	0.023	10		07/22/12 14:53		В
lickel, Dissolved	0.0090 m	•	0.00050	0.00015	. 1		07/22/12 14:49		•
otassium, Dissolved	1.8 m	ig/L	0.020	0.0052	1		07/22/12 14:49		
Selenium, Dissolved	2.0 m	ig/L	0.0050	0.00094	10		07/22/12 14:53		
Sodium, Dissolved	5.4 m	ig/L	0.050	0.010	1		07/22/12 14:49		
otal Hardness by 2340B, Dissolved	374 m	ıg/L	0.71	0.36	10		07/22/12 14:53		
/anadium, Dissolved	0.029 m	g/L	0.00010	0.000037	1	07/13/12 10:02	07/22/12 14:49	7440-62-2	
inc, Dissolved	0.023 m	g/L	0.0050	0.0010	1		07/22/12 14:49		
00.0 IC Anions	Analytical	Method: EPA	300.0						
Chloride	3.6 m	g/L	2.0	0.37	2		07/16/12 10:02	16887-00-6	
Sulfate	188 m	-	10.0	1.2	10		07/16/12 05:07		
320B Alkalinity	Analytical	Method: SM 2	320B						
Ikalinity,Bicarbonate (CaCO3)	160 m	a/L	5.0	2.5	1		07/11/12 15:23		
lkalinity, Carbonate (CaCO3)	<2.5 m	•	5.0	2.5	1		07/11/12 15:23		
lkalinity, Total as CaCO3	160 m	•	5.0	2.5	1		07/11/12 15:23		
ation/Anion Balance (Mining)		Method: SM 1							
ation/Anion Balance	3.5 %				1		07/30/12 09:07		



Total Cations

Total Anions

7.8 meq/L

7.2 meq/L

07/30/12 09:07

07/30/12 09:07





Project:

North Maybe Mine

Pace Project No.: 10198100

Sample: IA1-28A-070512	Lab ID: 1019810000	2 Collec	ted: 07/05/1	2 10:55	Received: 0	7/10/12 10:13 N	fatrix: Water	
Parameters	Results Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qua
200.8 MET ICPMS	Analytical Method: EPA	200.8 Pre	paration Met	hod: EF	A 200.8			
Cadmium	0.0016 mg/L	0.000080		1				
Calcium	98.8 mg/L	0.20		10	07/12/12 13:07	07/20/12 23:43	7440-43-9	
Chromium	0.0057 mg/L	0.00050			07/12/12 13:07	07/20/12 23:47	7440-70-2	
Magnesium	23.2 mg/L	0.00050	0.000094	1	07/12/12 13:07	07/20/12 23:43	7440-47-3	
Nickel	0.016 mg/L	0.00050	0.0023	10	07/12/12 13:07	07/20/12 23:47	7439-95-4	
Potassium	1.7 mg/L	0.0000	0.00013	1	07/12/12 13:07	07/20/12 23:43	7440-02-0	
Selenium	1.8 mg/L	0.020		1	07/12/12 13:07	07/20/12 23:43	7440-09-7	В
Sodium	5.2 mg/L		0.00094	10	07/12/12 13:07	07/20/12 23:47	7782-49-2	
Total Hardness by 2340B	342 mg/L	0.050	0.010	1	07/12/12 13:07	07/20/12 23:43	7440-23-5	
Vanadium	0.039 mg/L	0.71	0.36	10	07/12/12 13:07	07/20/12 23:47		
Zinc		0.00010	0.000037	1	07/12/12 13:07	07/20/12 23:43	7440-62-2	
	0.059 mg/L	0.0050	0.0010	1	07/12/12 13:07	07/20/12 23:43	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: EPA	200.8 Prep	aration Meth	od: EP/	A 200.8			
Cadmium, Dissolved	0.0011 mg/L	0.000080	0.000028	1	07/13/12 10:02	07/22/12 15:16	7440 40 0	
Calcium, Dissolved	107 mg/L	0.20	0.10	10	07/13/12 10:02	07/22/12 15:16	7440-43-9	_
Chromium, Dissolved	0.0053 mg/L	0.00050	0.000094	1	07/13/12 10:02	07/22/12 15:21	7440-70-2	В
Magnesium, Dissolved	22.4 mg/L	0.0050	0.0023	1	07/13/12 10:02	07/22/12 15:16	7440-47-3	
Nickel, Dissolved	0.014 mg/L	0.00050	.0.0025	1.	07/13/12 10:02	07/22/12 15:16	7439-95-4	В
Potassium, Dissolved	1.8 mg/L	0.020	0.0052		07/13/12 10:02	07/22/12 15:16	7440-02-0	
Selenium, Dissolved	2.0 mg/L	0.020	0.0052	1	07/13/12 10:02	07/22/12 15:16	7440-09-7	
Sodium, Dissolved	5.2 mg/L	0.050		10	07/13/12 10:02	07/22/12 15:21	7782-49-2	
Total Hardness by 2340B,	359 mg/L	0.030	0.010	1	07/13/12 10:02	07/22/12 15:16	7440-23-5	
Dissolved	900 mg/c	0.71	0.36	10	07/13/12 10:02	07/22/12 15:21		
/anadium, Dissolved	0.039 mg/L	0.00010	0.000037	1	07/13/12 10:02	07/22/12 15:16	7440.00.0	
Zinc, Dissolved	0.043 mg/L	0.0050	0.0010	1	07/13/12 10:02	07/22/12 15:16	7440-62-2	
00.0 IC Anions	Analytical Method: EPA 3		0.0010	•	07/13/12 10:02	07/22/12 15:16	7440-66-6	
Chloride	4.0 mg/L			_				
Gulfate	4.0 mg/L 189 mg/L	2.0	0.37	2		07/16/12 10:31		
	_	10.0	1.2	10		07/16/12 05:36	14808-79-8	2M
320B Alkalinity	Analytical Method: SM 23	320B						
lkalinity,Bicarbonate (CaCO3)	156 mg/L	- 5.0	2.5	1		07/11/12 15:28		
Ikalinity, Carbonate (CaCO3)	<2.5 mg/L	5.0	2.5	1		07/11/12 15:28		
Ikalinity, Total as CaCO3	156 mg/L	5.0	2.5	1		07/11/12 15:28		
ation/Anion Balance (Mining)	Analytical Method: SM 10	30E						
ation/Anion Balance	2.0 %			1		07/00/46 ** -		
otal Cations	7.4 meq/L			.1		07/30/12 09:07		
otal Anions	7.2 meq/L			1		07/30/12 09:07		
	F.E ITIEQ/L			1		07/30/12 09:07		

Date: 07/30/2012 10:41 AM

REPORT OF LABORATORY ANALYSIS

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Project:

North Maybe Mine

Pace Project No.:

10198100

Sample: IA1-55-070512

Sample: IA1-55-070512	Lab ID:	10198100003	Collect	ed: 07/05/1	2 11:15	Received: 07	/10/12 10:13 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical	Method: EPA	200.8 Prep	paration Met	nod: EP	A 200.8			
Cadmium	0.0021 n	ng/L	0.000080	0.000028	1	07/12/12 13:07	07/20/12 23:52	7440-43-9	
Calcium	108 n	ng/L	0.20	0.10	10	07/12/12 13:07			
Chromium	0.0058 n		0.00050	0.000094	1	07/12/12 13:07	-		
Magnesium	23.7 n	ng/L	0.050	0.023	10	07/12/12 13:07			
Nickel	0.019 n	ng/L	0.00050	0.00015	1	07/12/12 13:07			
Potassium	1.8 m	ng/L	0.020	0.0052	1	07/12/12 13:07			В
Selenium	1.8 m	ng/L	0.0050	0.00094	10	07/12/12 13:07			•
Sodium	5.2 m	-	0.050	0.010	1	07/12/12 13:07			
Total Hardness by 2340B	368 m	ng/L	0.71	0.36	10	07/12/12 13:07			
Vanadium	0.037 m	ıg/L	0.00010	0.000037	1	07/12/12 13:07		7440-62-2	
Zinc	0.083 m	-	0.0050	0.0010	1	07/12/12 13:07			
200.8 MET ICPMS, Dissolved	Analytical	Method: EPA 2	200.8 Prep	paration Meth	od: EP				
Cadmium, Dissolved	0.0021 m		0.000080	0.000028	1	07/13/12 10:02	07/22/12 15:30	7440 42 0	
Calcium, Dissolved	116 m	-	0.20	0.10	10		07/22/12 15:35		В
Chromium, Dissolved	0.0057 m	•	0.00050	0.000094	1		07/22/12 15:30		Ь
agnesium, Dissolved	23.8 m	•	0.050	0.023	10		07/22/12 15:35		В
Nickel, Dissolved	. 0.018 m	-	0.00050		1		07/22/12 15:30		ь
Potassium, Dissolved	1.9 m	•	0.020	0.0052	1		07/22/12 15:30		
Selenium, Dissolved	2.1 m	•	0.0050	0.00094	10		07/22/12 15:35		
Sodium, Dissolved	5.3 m	•	0.050	0.010	1		07/22/12 15:30		
Total Hardness by 2340B, Dissolved	388 m	•	0.71	0.36	10	07/13/12 10:02		7440-23-3	
Vanadium, Dissolved	0.039 m	g/L	0.00010	0.000037	1	07/13/12 10:02	07/22/12 15:30	7440-62-2	
Zinc, Dissolved	0.083 m	g/L	0.0050	0.0010	1		07/22/12 15:30	· · · ·	•
300.0 IC Anions	Analytical	Method: EPA 3	0.00						
Chloride	3.8 m	a/L	2.0	0.37	2		07/16/12 11:01	16887-00-6	
Sulfate	194 m	•	10.0	1.2	10		07/16/12 06:06		
2320B Alkalinity	Analytical	Method: SM 23	320B						
Alkalinity,Bicarbonate (CaCO3)	173 m	a/L	5.0	2.5	1		07/11/12 15:33		
Alkalinity, Carbonate (CaCO3)	<2.5 m	-	5.0	2.5	1		07/11/12 15:33		
Alkalinity, Total as CaCO3	173 m	•	5.0	2.5	1		07/11/12 15:33		
Cation/Anion Balance (Mining)	Analytical	Method: SM 10	30E						
Cation/Anion Balance	2.8 %				1		07/30/12 09:07		
Total Cations	8.0 m				1	•	07/30/12 09:07		
Total Anions	7.6 m	•			1		07/30/12 09:07		

Date: 07/30/2012 10:41 AM

REPORT OF LABORATORY ANALYSIS

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Project:

North Maybe Mine

Pace Project No.: 10198100

Sample: DUP-070512-A	Lab ID: 10	198100004 Collec	led: 07/05/1	2 11:30	Received: 07	7/10/12 10:13 M	fatrix: Water	
Parameters	Results	Jnits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Met	hod: EPA 200.8 Pre	paration Met	hod: EP	A 200.8			
Cadmium	0.0021 mg/L	0.000080	0.000028	1	07/12/12 13:07	07/21/12 00:01	7440-43-9	
Calcium	110 mg/L	0.20	0.10	10		07/21/12 00:06		
Chromium	0.0058 mg/L	0.00050	0.000094	1	07/12/12 13:07	07/21/12 00:01	7440-47-3	
Magnesium	23.5 mg/L	0.050	0.023	10		07/21/12 00:06		
Nickel	0.019 mg/L	0.00050	0.00015	1		07/21/12 00:01		
Potassium	1.8 mg/L	0.020	0.0052	1	07/12/12 13:07	07/21/12 00:01	7440-09-7	В
Selenium	1.8 mg/L	0.0050	0.00094	10		07/21/12 00:06		J
Sodium	5.2 mg/L	0.050	0.010	1		07/21/12 00:01		
Total Hardness by 2340B	372 mg/L	0.71	0.36	10	07/12/12 13:07	07/21/12 00:06	200	
Vanadium	0.037 mg/L	0.00010	0.000037	1	07/12/12 13:07			
Zinc	0.082 mg/L	0.0050	0.0010	1		07/21/12 00:01	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Met	nod: EPA 200.8 Prep	aration Meth	nod: EP/				
Cadmium, Dissolved	0.0020 mg/L	0.000080	0.000028	1	07/13/12 10:02	07/22/12 15:44	7440 42 0	
Calcium, Dissolved	114 mg/L	0.20	0.10	10	07/13/12 10:02			
Chromium, Dissolved	0.0055 mg/L	0.00050	0.000094	1		07/22/12 15:46		В
Magnesium, Dissolved	21.9 mg/L	0.0050	0.0023	1		07/22/12 15:44		В
Nickel, Dissolved	0.017 mg/L	0.00050	0.00015	1		07/22/12 15:44		В
Potassium, Dissolved	1.8 mg/L	0.020	0.0052	1	07/13/12 10:02	07/22/12 15:44	7440-02-0	
Selenium, Dissolved	2.0 mg/L	0.0050	0.00094	10		07/22/12 15:48		
Sodium, Dissolved	5.1 mg/L	0.050	0.010	1		07/22/12 15:44		
Total Hardness by 2340B, Dissolved	374 mg/L	0.71	0.36	10	07/13/12 10:02		7440-23-3	
Vanadium, Dissolved	0.037 mg/L	0.00010	0.000037	1	07/13/12 10:02	07/22/12 15:44	7440-62-2	
Zinc, Dissolved	0.079 mg/L	0.0050	0.0010	1		07/22/12 15:44		
300.0 IC Anions	Analytical Meth	od: EPA 300.0				07722772 10.77	7440 00-0	
Chloride	3.7 mg/L	2.0	0.37	2		07/16/12 11:30	16997 00 6	
Sulfate	193 mg/L	10.0	1.2	10		07/16/12 06:35		
2320B Alkalinity	Analytical Meth	od: SM 2320B						
Alkalinity,Bicarbonate (CaCO3)	175 mg/L	5.0	2.5	1		07/11/12 15:37		
Alkalinity, Carbonate (CaCO3)	<2.5 mg/L	5.0	2.5	1		07/11/12 15:37		
Alkalinity, Total as CaCO3	175 mg/L	5.0	2.5	1		07/11/12 15:37		
Cation/Anion Balance (Mining)	Analytical Meth	od: SM 1030E						
Cation/Anion Balance.	0.78 %			. 1		07/30/12.09:07		
Total Cations	7.7 meg/L		•	1		07/30/12:09:07		
Total Anions	7.6 meg/L			1		07/30/12 09:07		

Date: 07/30/2012 10:41 AM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10198100

QC Batch:

MPRP/33661

Analysis Method:

EPA 200.8 200.8 MET

QC Batch Method:

EPA 200.8

Analysis Description:

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

METHOD BLANK: 1238410

Matrix: Water

Associated Lab Samples: 10198100001, 10198100002, 10198100003, 10198100004

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
Cadmium	mg/L	<0.000028	0.000080	07/20/12 23:02	
Calcium	mg/L	<0.010	0.020	07/20/12 23:02	
Chromium	mg/L	< 0.000094	0.00050	07/20/12 23:02	
Magnesium	mg/L	<0.0023	0.0050	07/20/12 23:02	
Nickel	mg/L	< 0.00015	0.00050	07/20/12 23:02	
Potassium	mg/L	0.012J	0.020	07/20/12 23:02	
Selenium	mg/L	<0.000094	0.00050	07/20/12 23:02	
Sodium	mg/L	<0.010	0.050	07/20/12 23:02	
Total Hardness by 2340B	mg/L	< 0.036	0.071	07/20/12 23:02	
Vanadium	mg/L	<0.000037	0.00010	07/20/12 23:02	
Zinc	mg/L	< 0.0010	0.0050	07/20/12 23:02	

ABORATORY CONTROL SAMPLE:	1238411						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers	
Cadmium	mg/L	.08	0.081	101	85-115		
Calcium	mg/L	1	0.99	99	85-115		
Chromium	mg/L	.08	0.082	102	85-115		
Magnesium	mg/L	1	1.0	102	85-115		
Nickel	mg/L	.08	0.084	105	85-115		
Potassium	mg/L	1	0.96	96	85-115		
Selenium	mg/L	.08	0.079	99	85-115		
Sodium	mg/L	1	0.97	97	85-115		
Total Hardness by 2340B	mg/L	6.6	6.7	101	85-115		
Vanadium	mg/L	.08	0.080	100	85-115		
Zinc	mg/L	.08	0.083	103	85-115		

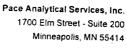
MATRIX SPIKE SAMPLE:	1238412						
Parameter	Units	10198100001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	0.00081	.08	0.081	101	70-130	
Calcium	mg/L	103	1	104	80	70-130	
Chromium	mg/L	0.0056	.08	0.087	102	70-130	
Magnesium	mg/L	23.1	1	24.0	92	70-130	
Nickel	mg/L	0.0090	.08	0.092	104	70-130	
Potassium	mg/L	1.7	1	2.7	99	70-130	
Selenium	mg/L	1.8	.08	1.9	109	70-130	
Sodium	mg/L	5.2	1	6.1	90	70-130	
Total Hardness by 2340B	mg/L	352	6.6	358	88	70-130	
anadium	mg/L	0.028	.08	0.11	102	70-130	

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

Qualifiers

QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10198100

MATRIX SPIKE SAMPLE:	1238412		
Parameter	11-9-	10198100001	Spike
rarameter	Units	Result	Conc

0198100001 Spike MS MS % Rec Result Conc. Result % Rec Limits

Zinc mg/L 0.024 .08 0.11 106 70-130

MATRIX SPIKE & MATRIX S	PIKE DUPLICAT	E: 12384	13		1238414							
Parameter	10 Units	198274005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qua
Cadmium	mg/L	0.0035	.08	.08	0.084	0.085	100	102	70-130		20	
Calcium	mg/L	357	1	1	364	354	760	-325	70-130	3	-	E,M1
Chromium	mg/L	0.00097	.08	.08	0.084	0.083	104	102	70-130	1	20	L,IVI I
/lagnesium	mg/L	172	1	1	178	172	645	60	70.400	_		_
Nickel	mg/L	0.070	.08	.08	0.16	0.16	106	60	70-130	3		E,M1
otassium	mg/L	2.8	1	1	3.8	3.7		109	70-130	1	20	
Selenium	mg/L	0.43	.08	.08	0.52		102	95 .	70-130	2	20	
iodium	mg/L	12.5	.00			0.52	112	111	70-130	.3	20	
otal Hardness by 2340B	-	160000	- 1	1	13.9	13.5	144	101	70-130	3	20	M1
otal Halaness by 2540B	mg/L	0 ug/L	6.6	6.6	1640	1590	688	-85	70-130	3	20	
'anadium	mg/L	4.6J ug/L	.08	.08	0.086	0.087	102	102	70-130	.2	20	
linc	mg/L	0.13	.08	.08	0.21	0.21	108	109	70-130	.4	20	

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REPORT OF LABORATORY ANALYSIS





QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10198100

QC Batch:

MPRP/33655

Analysis Method:

EPA 200.8

QC Batch Method:

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

EPA 200.8

10198100001, 10198100002, 10198100003, 10198100004

METHOD BLANK: 1238381

Matrix: Water

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	mg/L	<0.000028	0.000080	07/22/12 14:26	
Calcium, Dissolved	mg/L	0.013J	0.020	07/22/12 14:26	
Chromium, Dissolved	mg/L	<0.000094	0.00050	07/22/12 14:26	
Magnesium, Dissolved	mg/L	0.0049J	0.0050	07/22/12 14:26	
Nickel, Dissolved	mg/L	<0.00015	0.00050	07/22/12 14:26	
Potassium, Dissolved	mg/L	<0.0052	0.020	07/22/12 14:26	
Selenium, Dissolved	mg/L	<0.000094	0.00050	07/22/12 14:26	
Sodium, Dissolved	mg/L	<0.010	0.050	07/22/12 14:26	
Total Hardness by 2340B, Dissolved	mg/L	0.052J	0.071	07/22/12 14:26	
Vanadium, Dissolved	mg/L	< 0.000037	0.00010	07/22/12-14:26	
Zinc, Dissolved	mg/L	< 0.0010	0.0050	07/22/12 14:26	

ABORATORY CONTROL SAMPLE: 1238382

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	.08	0.078	98	85-115	
Calcium, Dissolved	mg/L	1	0.93	93	85-115	
Chromium, Dissolved	mg/L	. 80.	0.080	100	85-115	
Magnesium, Dissolved	mg/L	1	0.97	97	85-115	
Nickel, Dissolved	mg/L	.08	0.080	100	85-115	
Potassium, Dissolved	mg/L	1	0.98	98	85-115	
Selenium, Dissolved	mg/L	.08	0.082	102	85-115	
Sodium, Dissolved	mg/L	1	0.96	96	85-115	
Total Hardness by 2340B, Dissolved	mg/L	6.6	6.3	96	85-115	
Vanadium, Dissolved	mg/L	.08	0.079	99	85-115	
Zinc, Dissolved	mg/L	.08	0.080	100	85-115	

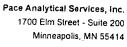
MATRIX SPIKE SAMPLE:	1238383						
Parameter ·	Units	10198138001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	ND ND	.08	0.078	98	70-130	· _
Calcium, Dissolved	mg/L	102000 ug/L	1	119	1720	70-130	E.M1
Chromium, Dissolved	mg/L	1.1 ug/L	.08	0.081	100	70-130	
Magnesium, Dissolved	mg/L	129000 ug/L	1	148	1900	70-130	E.M1
Nickel, Dissolved	mg/L	ND	.08	0.080	100	70-130	
Potassium, Dissolved	mg/L	9050 ug/L	1	10.3	122	70-130	
Selenium, Dissolved	mg/L	5.3 ug/L	.08	0.091	107	70-130	
odium, Dissolved	mg/L	94200 ug/L	1	102	735	70-130	M1

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.: 10198100

MATRIX SPIKE SAMPLE:	1238	3383										
Parameter		Units	10198138001 Result		Spike Conc.	MS Result		/IS Rec	- 701100			lifiers
Total Hardness by 2340B, Dissolved	mg/L		784	1000 ug/L	6.6		005	1830	70-	130		
Vanadium, Dissolved	mg/L		(0.32 ug/L	.08	0.0	182	103	70	400		
Zinc, Dissolved	mg/L			5.9 ug/L	.08	0.0		99		130 130		
MATRIX SPIKE & MATRIX SP	PIKE DUPLICAT	E: 12383	-		1238385							
	40	400074007	MS	MSD								
Parameter		198274005	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Farameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qua.
Cadmium, Dissolved	mg/L	0.0032	.08	.08	0.077	0.078	92	94	70-130		20	
Calcium, Dissolved	mg/L	367	1	1	360	368	-695	25	70-130	2		E,M1
Chromium, Dissolved	mg/L	0.00096	.08	.08	0.078	0.077	96	95	70-130	.7	20	L,1V1 I
Magnesium, Dissolved	mg/L	162	. 1	1	160	163	-220	. 50	70-130	.,		E,M1
Nickel, Dissolved	mg/L	0.065	.08	.08	0.14	0.14	92	96	70-130	2	20	∟, V
Potassium, Dissolved	mg/L _	3.0	1	1	3.9	3.9	89	94	70-130	1	20	
Selenium, Dissolved	mg/L	0.46	.08	.08	0.55	0.55	112	116	70-130	.6	20	
Sodium, Dissolved	mg/L	12.2	1	1	13.2	13.5	94	124	70-130	.0	20	
Total Hardness by 2340B, Dissolved	mg/L	1580	6.6	6.6	1560	1590	-399	41	70-130	2	20	
/anadium, Dissolved	mg/L	4.4J ug/L	.08	.08	0.081	0.083	96	98	70-130	2	20	
Zinc, Dissolved	mg/L	0.12	.08	.08	0.20	0.20	100	101	70-130	4	20	





QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10198100

QC Batch:

MT/9411

Analysis Method:

EPA 300.0

QC Batch Method:

EPA 300.0

Analysis Description:

300.0 IC Anions

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

METHOD BLANK: 1241173

Matrix: Water

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

Blank

Reporting

Parameter

Units

Units

Units

Result

Limit Analyzed Qualifiers

Chloride Sulfate

mg/L

< 0.18 < 0.12

07/15/12 15:50 1.0

07/15/12 15:50

METHOD BLANK: 1241210

Matrix: Water

Associated Lab Samples:

Parameter

10198100001, 10198100002, 10198100003, 10198100004

Blank

Reporting Limit

Analyzed

Chloride

mg/L

<0.18

Result

1.0 07/15/12 16:49 1M

% Rec

% Rec

Qualifiers

Sulfate

mg/L

mg/L

<0.12

1.0 07/15/12 16:49 1M

ABORATORY CONTROL SAMPLE:

Parameter

1241174

Spike Conc.

Spike

Conc.

LCS LCS

% Rec Limits

Qualifiers

Chloride Sulfate

mg/L mg/L 20 20 20.3 19.4 102 97

90-110 E 90-110

LABORATORY CONTROL SAMPLE:

Parameter

1241211

Units

LCS Result

Result

LCS

% Rec Limits

Qualifiers

Chloride Sulfate

mg/L mg/L 20 20 20.4

Spike

Conc.

102

90-110 1M,E

MATRIX SPIKE SAMPLE:

1241212

Parameter Units mg/L

3.4

2.4J

3.5

2.6

10197783002

Result

19.3

50

96

MS

Result

90-110 1M

MS

% Rec

114

98

93

% Rec

Limits

Qualifiers

Chloride

Sulfate

mg/L

mg/L

mg/L

50

53.6 102 80-120 80-120

80-120

80-120

MATRIX SPIKE SAMPLE:

Parameter

1241214

Units

10197977001 Result

Spike Conc.

10

10

MS MS % Rec Result

13.4

12.0

60.2

% Rec

Limits Qualifiers

Chloride

Sulfate

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.: 10198100

	SAMPLE	DUPL	ICATE:
--	--------	------	--------

1241213

	Parameter	Units	10197785003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride Sulfate		mg/L mg/L	2.3J 8.0	2.1 9.0	12	20 20	

SAMPLE	DUPLICATE:	124121
--------	------------	--------

Parameter	Units	10197977002 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride Sulfate	mg/L mg/L	<0.50 <0.50	0.43J 0.35J		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10198100

QC Batch:

WET/26728

Analysis Method:

SM 2320B

QC Batch Method:

SM 2320B

Analysis Description:

2320B Alkalinity

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

254

40

mg/L

METHOD BLANK: 1237344

Matrix: Water

Associated Lab Samples:

10198100001, 10198100002, 10198100003, 10198100004

Blank Reporting Parameter Units Result Limit Analyzed Qualifiers Alkalinity, Carbonate (CaCO3) mg/L <2.5 07/11/12 12:00 Alkalinity, Total as CaCO3 <2.5 mg/L 07/11/12 12:00 5.0 Alkalinity, Bicarbonate (CaCO3) mg/L <2.5 07/11/12 12:00 5.0

LABORATORY CONTROL SAMP	LE & LCSD: 1237345		12	237346						
		Spike	LCS	LCSD	LCS	LCSD	% Rec		Max	
Parameter	Units	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	40	41.5	41.2	104	103	90-110	.7	30	-

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 12373	47		1237348							
		197785003	MS Spike	MSD Spike	MS	MSD .	MS.	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Alkalinity, Total as CaCO3	mg/L	163	40	40	204	203	102	100	80-120	.3	30	
MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 12373	49	· · · · · · · · · · · · · · · · · · ·	1237350							
			MS	MSD								
	101	198014006	Spike	Spike	MS	MSD	MS	MSD	% Rec		Max	
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual

40

293

291

96

91

80-120

30

Alkalinity, Total as CaCO3



QUALIFIERS

Project:

North Maybe Mine

Pace Project No.:

10198100

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis
PASI-MT Pace Analytical Services - Montana

ANALYTE QUALIFIERS

1M Centrifuged prior to analysis.

2M Sample was centrifuged due to particulate contamination.

B Analyte was detected in the associated method blank.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

North Maybe Mine

Pace Project No.: 10198100

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10198100001	IA1-30A-070512	EPA 200.8	MPRP/33661	EPA 200.8	ICPM/13208
10198100002	IA1-28A-070512	EPA 200.8	MPRP/33661	EPA 200.8	ICPM/13208
10198100003	IA1-55-070512	EPA 200.8	MPRP/33661	EPA 200.8	ICPM/13208
10198100004	DUP-070512-A	EPA 200.8	MPRP/33661	EPA 200.8	ICPM/13208
10198100001	IA1-30A-070512	EPA 200.8	MPRP/33655	EPA 200.8	ICPM/13215
10198100002	IA1-28A-070512	EPA 200.8	MPRP/33655	EPA 200.8	ICPM/13215
10198100003	IA1-55-070512	EPA 200.8	MPRP/33655	EPA 200.8	ICPM/13215
10198100004	DUP-070512-A	EPA 200.8	MPRP/33655	EPA 200.8	ICPM/13215
10198100001	IA1-30A-070512	EPA 300.0	MT/9411		
10198100002	IA1-28A-070512	EPA 300.0	MT/9411		
10198100003	IA1-55-070512	EPA 300.0	MT/9411		
10198100004	DUP-070512-A	EPA 300.0	MT/9411		
10198100001	IA1-30A-070512	SM 2320B	WET/26728		
10198100002	IA1-28A-070512	SM 2320B	WET/26728		
10198100003	iA1-55-070512	SM 2320B	WET/26728		
10198100004	DUP-070512-A	SM 2320B	WET/26728		
10198100001	IA1-30A-070512	SM 1030E	WETA/12975		
0198100002	IA1-28A-070512	SM 1030E	WETA/12975		
10198100003	IA1-55-070512	SM 1030E	WETA/12975		
10198100004	DUP-070512-A	SM 1030E	WETA/12975	•	•



SHORT HOLD, &

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10198100

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Phone:	208-547-3935 Fax		•	orth Mayb		<u> </u>		· :-	Refe	rence:			0612	_NMI	M \$\	W- J			L⊏	UST		□ R	CRA		1	OTHER	₹	
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Table 4-2 Surface water Analyte List for July

Analyte	Analytical	Container Size		Container	Preservative	Holding Time	Detection	
	Method	Total	Dissolved	Material			Limit/Units	
Cadmium - total & dissolved*	EPA M200.8						0.1 µg/L	
Chromium – total & dissolved*	EPA M200.8]	i .	· .			0.1 μg/L	
Nickel total & dissolved*	EPA M200.8						0.6 µg/L	
Selenium – total & dissolved*	EPA M200.8						0.1 μg/L	
Vanadium – total & dissolved*	EPA M200.8	250 ml	250 ml*	Delvettudese	NIMITA A LTU	100 5	0.2 μg/L	
Zinc – total & dissolved*	EPA M200.8	250 mi	250 ml	Polyethylene	Nitric Acid	180 Days	2 μg/L	
Cations - Calcium - total & dissolved*	EPA M200.7						0.2 mg/L	
Cations – Magnesium – total & dissolved*	EPA M200.7]					0.2 mg/L	
Cations - Potassium - total & dissolved*	EPA M200.7			· .	:		0.3 mg/L	
Cations - Sodium - total & dissolved*	EPA M200.7						0.3 mg/L	
Alkalinity, bicarbonate (as CaCO3)	SM 2320B							
Alkalinity, carbonate (as CaCO3)	SM 2320B	1	· ·			14 Days	2 mg/L	
Alkalinity, total (as CaCO3)	SM 2320B	1000 ml	-	Polyethylene	Cool to 4°C ± 2°C			
Anions - Chloride	EPA M300.0					30 0	0.5 mg/L	
Anions - Sulfate	EPA M300.0					28 Days	0.5 mg/L	
Hardness	SM 2340B	_		Polyethylene	Nitric Acid	180 Days	2 mg/L	
	(Calculated)			, c., c., ., ., ., .	11111071010	100 Buju	Z mg/L	
pH	Field	-	-,	- .	_		standard units	
ORP	Field	-	·. <u>-</u>	_	•		mV	
Dissolved Oxygen	Field	_		· -		Analyze immediately	mg/L	
Conductivity	Field	_	-		· * : • • · · ·	Analyze infillediately	µmhos/cm	
Temperature	Field	- .	-				°C	
Turbidity	Field	-	-	- .	-		NTU	

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

µmhos/cm = micromhos per centimeter

°C = degrees Celsius

NTU = nephelometric turbidity units



Project Manager Review:

Document Name: Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.03 Page 1 of 1

Issuing Authority:
Pace Minnesota Quality Office

Upon Receipt Again			Project	" WO#:10198100
Courler: ✓ Fed Ex UPS □ Commercial □ Pace	USPS		lient	
Tracking Number: 4569 1404 7974	□Other			10198100
Custody Seal on Cooler/Box Present? Yes	No	Seals I	ntact?	Yes No Optional: Proj. Due Date: Proj. Name:
Packing Material: Bubble Wrap Bubble Ba	gs 🔲 N	one [Other:_	Temp Blank? Yes No
Thermometer Used: \$\int 80344042 80512447	Type of	Ice:	Wet [Blue None Samples on ice, cooling process has begun
Cooler Temperature: 411 Biological Tissue Fro				— — E Pridecia nai neguii
Temp should be above freezing to 6°C	zent [Yes 🗌	No Da	te and Initials of Person Examining Contents: 971012
				Comments:
Chain of Custody Present?	□ 7es	□No	□N/A	1,
Chain of Custody Filled Out?	Yes	□No	□n/a	2.
Chain of Custody Relinquished?	Yes	□No	□N/A	3.
Sampler Name and Signature on COC?	Yes	□No	□N/A	4.
Samples Arrived within Hold Time?	Yes	□No	□N/A	5.
Short Hold Time Analysis (<72 hr)?	Yes	□No	□n/a	6. TUID
Rush Turn Around Time Requested?	☐Yes	No	□N/A	7.
Sufficient Volume?	- Drés	□No	□n/a	8.
Correct Containers Used?	Yes	□No	□N/A	9.
-Pace Containers Used?	Yes	□No	□N/A	
Containers Intact?	Yes	□No	□N/A	10.
Filtered Volume Received for Dissalved Tests?	.EÎYes	□No	□N/A	11.
Sample Labels Match COC?	Yes	□No	□N/A	12.
-lincludes Date/Time/ID/Analysis Matrix:	+.	_		
All containers needing add/base preservation have	Z/Yes	□No	□n/a	13. ☑HNO₃ ☐H₂SO₄ ☐NaOH ☐HC
been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in	/			Sample # 2/2
compliance with EPA recommendation?	Yes	□No	□n/A	'
(HNO ₂ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease,				1A1 30A, 28A 1551A4
WI-DRO (water)	Yes	No		Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	Yes	□No	ØN/A	14.
Trip Blank Present?	Yes	□Мо	ØN/A	15.
Trip Blank Custody Seals Present?	Yes	ШNо	□ N/A	_
Pace Trip Blank Lot # (if purchased):				
CUENT NOTIFICATION/RESOLUTION				Field Data Required? Yes No
Person Contacted:				Date/Time:
Comments/Resolution:				

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Date:

28 of 29

Pace Analytical"	Document Name: MT/MN Sample Transfer Form	Revised Date: 1Aug2011 Page 1 of 1
	Document Number: F-MT-179-Rev.00	Issuing Authority: Pace Montana Quality Office

Shipping Tracking # UP	S Fed Ex	45691405356
	Client	—Agrium—
	Due Date	7/20/2012
	Pace WO	10198100

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DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services, Inc.

Pace Project ID:

10201585

Data Validator:

Chris Davis

Date Validated:

December 6, 2012

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters

and Methods:

Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8
 Dissolved Cations (calcium, magnesium); 200.8

3. Hardness; SM2340B

Sample Identifications:

IA1-30A-080612 IA1-28A-080612

IA1-55-080612

DUP-080612-A (field duplicate for IA1-30A-080612)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected, except laboratory reagent blanks (LRBs) at the following

maximum concentrations in the specified batches for:

Dissolved magnesium at 0.0030 mg/L (LRB MPRP/345108)

Dissolved zinc at 0.0011 mg/L (LRB MPRP/34510)

Qualification: No qualification was necessary. All sample results were greater

than 10-times the concentrations in the associated blanks.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable. Note that the percent recoveries (%Rs) of 825% and 310% for dissolved calcium in the MS/MSD, 48% for dissolved magnesium in the MSD, 166% for dissolved selenium in the MS, and 144% and 129% for total selenium in the MS/MSD analyses of sample IA1-30A-080612 (10201585-001); and the 410% for dissolved calcium in the MS, 56% for dissolved magnesium in the MS, and 54% for dissolved selenium in the MS analysis of sample IA1-55-080612 (10201585-003) exceeded the 75-125%R control limits for metals. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. As the sample results exceeded four times the spike, no qualifiers are applicable.

6. OVERALL ASSESSMENT

No other issues were identified.





December 10, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: Revised: North Maybe Mine

Pace Project No.: 10201585

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on August 08, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revised: This report was revised on 9/7/12 to include re-analysis results of Selenium on all samples.

Revised: This report was revised on 12/10/12 to include Ca and Mg results for sample 1.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Sally HERE

Enclosures

cc: Cindy Emmons, Norwest Corporation
Julie Lincoln, AECOM
James Williams, Agrium





Pace Analytical Services, Inc. 1700 Elm Street - Suite 200

Minneapolis, MN 55414

(612)607-1700

CERTIFICATIONS

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #: PH-0256
EPA Region 8 Certification #: PH-0256
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: Pace
Florida/NELAP Certification #: 859
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
Louisiana Certification #: D3086
Louisiana Certification #: 2007029
Maryland Certification #: 322

Michigan DEQ Certification #: 9909 Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 460163
Washington Certification #: 382
Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.



SAMPLE SUMMARY

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10201585001	IA1-30A-080612	Water	08/06/12 11:35	08/08/12 09:55
10201585002	IA1-28A-080612	Water	08/06/12 11:50	08/08/12 09:55
10201585003	IA1-55-080612	Water	08/06/12 12:05	08/08/12 09:55
10201585004	DUP-080612-A	Water	08/06/12 11:00	08/08/12 09:55



(612)607-1700



SAMPLE ANALYTE COUNT

Project:

Revised: North Maybe Mine

Pace Project No.: 10201585

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10201585001	IA1-30A-080612	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
10201585002	IA1-28A-080612	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0201585003	IA1-55-080612	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0201585004	DUP-080612-A	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M



(612)607-1700

PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Method:

EPA 200.8

Client:

Description: 200.8 MET ICPMS Agrium- Nu-West

Date:

December 10, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

nternal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/34582

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1267821)
 - Selenium
- · MSD (Lab ID: 1267822)
 - Selenium

REPORT OF LABORATORY ANALYSIS

Page 5 of 16



PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No .:

10201585

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: Date: Agrium- Nu-West December 10, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.

• DUP-080612-A (Lab ID: 10201585004)

• IA1-28A-080612 (Lab ID: 10201585002)

• IA1-30A-080612 (Lab ID: 10201585001)

· IA1-55-080612 (Lab ID: 10201585003)

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/34510

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10201585001,10201585003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- · MS (Lab ID: 1265872)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
 - · Selenium, Dissolved
- MS (Lab ID: 1267499)
 - Calcium, Dissolved
- Selenium, Dissolved
 MSD (Lab ID: 1267500)

REPORT OF LABORATORY ANALYSIS

- Page 6 of 16

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PROJECT NARRATIVE

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: Date:

Agrium- Nu-West December 10, 2012

QC Batch: MPRP/34510

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10201585001,10201585003

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

· Calcium, Dissolved

· Magnesium, Dissolved

Additional Comments:

Analyte Comments:

QC Batch: MPRP/34510

B: Analyte was detected in the associated method blank.

- DUP-080612-A (Lab ID: 10201585004)
 - · Magnesium, Dissolved
 - · Zinc, Dissolved
- IA1-28A-080612 (Lab ID: 10201585002)
 - Magnesium, Dissolved
 - · Zinc, Dissolved
- IA1-30A-080612 (Lab ID: 10201585001)
 - · Magnesium, Dissolved
 - · Zinc, Dissolved
- · IA1-55-080612 (Lab ID: 10201585003)
 - Magnesium, Dissolved
 - · Zinc, Dissolved

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1265872)
 - · Calcium, Dissolved
- · MS (Lab ID: 1267499)
 - · Calcium, Dissolved
- MSD (Lab ID: 1267500)
 - Calcium, Dissolved

This data package has been reviewed for quality and completeness and is approved for release.



Pace Analytical Services, Inc. 1700 Elm Ŝtreet - Suite 200 Minneapolis, MN 55414

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ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Lab ID: 10	201585001	Collect	ed: 08/06/1	12 11:35	Received: 08	/08/12 09:55 M	latrix: Water	
Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Me	thod: EPA 20	00.8 Pre	aration Met	hod: EP	PA 200.8			-,
				1		09/17/10 00:57	7440 40 0	
0.0056 mg/L		0.00050	_	1				
			·		_			
0.018 mg/L		0.0050	0.0010	1				
Analytical Met	thod: EPA 20	0.8 Prep	aration Meth	nod: EP		00/1//12 00:07	7440-00-0	
				4				
				10				
								M1
				•				
				-				B,M1
	•			-			7440-02-0	
							7782-49-2	M1
331 Hig/L		0.71	0.36	10	U8/15/12 12:07	08/20/12 13:38		
0.022 mg/L	(0.00010	0.000037	1	08/15/12 12:07	09/17/10 10:45	7440.00.0	
								В
	Results Analytical Me 0.00055 mg/L 0.0056 mg/L 1.7 mg/L 0.022 mg/L 0.018 mg/L Analytical Met 0.00056 mg/L 114 mg/L 0.0050 mg/L 25.6 mg/L	Analytical Method: EPA 20 0.00055 mg/L 0.0056 mg/L 0.0078 mg/L 1.7 mg/L 0.022 mg/L 0.018 mg/L Analytical Method: EPA 20 0.00056 mg/L 0.0050 mg/L 25.6 mg/L 0.0079 mg/L 1.8 mg/L 391 mg/L	Results Units PQL Analytical Method: EPA 200.8 Prep. 0.00055 mg/L 0.000080 0.0056 mg/L 0.00050 0.00050 0.0078 mg/L 0.00050 0.0025 1.7 mg/L 0.0025 0.0021 0.018 mg/L 0.0050 0.0050 Analytical Method: EPA 200.8 Prep. 0.00080 114 mg/L 0.20 0.0056 mg/L 0.00050 25.6 mg/L 0.0050 1.8 mg/L 0.0055 391 mg/L 0.0025 0.022 mg/L 0.00010	Results Units PQL MDL Analytical Method: EPA 200.8 Preparation Method: EPA 2	Results Units PQL MDL DF Analytical Method: EPA 200.8 Preparation Method: EFO.00055 mg/L 0.000080 0.000028 1 1 0.00056 mg/L 0.00050 0.000094 1 1 0.0078 mg/L 0.00050 0.00015 1 1.7 mg/L 0.0025 0.00047 5 0.0025 0.00047 5 0.0022 mg/L 0.00010 0.000037 1 0.018 mg/L 0.0050 0.0010 1 1 Analytical Method: EPA 200.8 Preparation Method: EPA 0.00056 mg/L 0.000080 0.000028 1 1 14 mg/L 0.20 0.10 10 10 0.0050 mg/L 0.0050 0.000094 1 0.0050 0.000094 1 25.6 mg/L 0.025 0.012 5 0.0012 5 0.0079 mg/L 0.00050 0.00015 1 1.8 mg/L 0.0025 0.00047 5 391 mg/L 0.71 0.36 10 0.022 mg/L 0.0010 0.000037 1 0.0022 mg/L 0.00010 0.000037 1 0.0022 mg/L	Results	Results	Results

Date: 12/10/2012 11:49 AM

REPORT OF LABORATORY ANALYSIS





Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Sample: IA1-28A-080612

Lab ID: 10201585002

Collected: 08/06/12 11:50

Received: 08/08/12 09:55 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	- Analytical M	Method: EPA	A 200.8 Prep	aration Meth	nod: EF	PA 200.8	•		
Cadmium	0.0011 mg	ı/L	0.000080	0.000028	1	08/15/12 15:30	08/17/12 04:25	7440-43-9	
Chromium	0.0051 mg	ı/L	0.00050	0.000094	1	08/15/12 15:30	08/17/12 04:25	7440-47-3	
Nickel	0.016 mg	/L	0.00050	0.00015	1	08/15/12 15:30	08/17/12 04:25	7440-02-0	
Selenium	1.7 mg	/L	0.0025	0.00047	5	08/15/12 15:30	08/25/12 08:01	7782-49-2	
Vanadium	0.035 mg	/L	0.00010	0.000037	1	08/15/12 15:30	08/17/12 04:25	7440-62-2	
Zinc	0.039 mg	ı/L	0.0050	0.0010	1	08/15/12 15:30	08/17/12 04:25	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical M	fethod: EPA	200.8 Prep	aration Meth	od: EF	PA 200.8			
Cadmium, Dissolved	0.00064 mg	/L	0.000080	0.000028	1	08/15/12 12:07	08/17/12 20:33	7440-43-9	
Calcium, Dissolved	111 mg	/L	0.20	0.10	10	08/15/12 12:07	08/20/12 13:47	7440-70-2	
Chromium, Dissolved	0.0055 mg	/L	0.00050	0.000094	1	08/15/12 12:07	08/17/12 20:33	7440-47-3	
Magnesium, Dissolved	25.5 mg	/L	. 0.050	0.023	10	08/15/12 12:07	08/20/12 13:47	7439-95-4	В.
Nickel, Dissolved	0.016 mg	/L	0.00050	0.00015	1	08/15/12 12:07	08/17/12 20:33	7440-02-0	
Selenium, Dissolved	1.9 mg	/L	0.0050	0.00094	10	08/15/12 12:07	08/20/12 13:47	7782-49-2	
Total Hardness by 2340B, Dissolved	382 mg	/L	0.71	0.36	10	08/15/12 12:07	08/20/12 13:47		
anadium, Dissolved	0.036 mg	/L	0.00010	0.000037	1	08/15/12 12:07	08/17/12 20:33	7440-62-2	
∠inc, Dissolved	0.027 mg	/L	0.0050	0.0010	1.	08/15/12 12:07	08/17/12 20:33	7440-66-6	В





Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Sample: IA1-55-080612	Lab ID:	10201585003	Collect	ed: 08/06/1	2 12:05	Received: 08	/08/12 09:55 M	atrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical I	Method: EPA 2	00.8 Prep	aration Meth	nod: EP	A 200.8	- ——		
Cadmium	0.0019 m		0.000080	0.000028	1	08/15/12 15:30	09/17/12 04:20	7440 40 0	
Chromium	0.0054 m	g/L	0.00050	0.000094	1	08/15/12 15:30			
lickel	0.018 mg		0.00050	0.00015	1	08/15/12 15:30			
elenium	2.1 mg		0.0025	0.00047	5	08/15/12 15:30	08/25/12 08:05		
anadium	0.035 mg		0.00010	0.000037	1	08/15/12 15:30			
inc	0.077 mg	g/L	0.0050	0.0010	1	08/15/12 15:30	08/17/12 04:30		
00.8 MET ICPMS, Dissolved	Analytical N	Method: EPA 20	0.8 Prep	aration Meth	od: EPA		00/1/12 04:00	7 440-00-0	
admium, Dissolved	0.0021 mg		.000080	0.000028	1		004740.00	_	
alcium, Dissolved	122 mg		0.20	0.10	10	08/15/12 12:07		7440-43-9	
hromium, Dissolved	0.0055 mg		0.00050	0.000094	10	08/15/12 12:07 08/15/12 12:07	08/20/12 14:02	7440-70-2	M1
agnesium, Dissolved	26.0 mg		0.025	0.00034	5	08/15/12 12:07		7440-47-3	
ckel, Dissolved	0.019 mg		0.00050	0.0012	1	08/15/12 12:07		7439-95-4	B.M1
elenium, Dissolved	1.9 mg		0.0025	0.00047	5				
tal Hardness by 2340B, ssolved	413 mg		0.71	0.36	10	08/15/12 12:07 08/15/12 12:07	08/17/12 20:57 08/20/12 14:02	7782-49-2	M1
nnadium, Dissolved	0.035 mg	/L (0.00010	0.000037	1	08/15/12 12:07	00/47/40 00 47	7440.00.5	
nc, Dissolved	0.082 mg		0.0050	0.0010	1	08/15/12 12:07	08/17/12 20:47 08/17/12 20:47		В

Date: 12/10/2012 11:49 AM

REPORT OF LABORATORY ANALYSIS



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ANALYTICAL RESULTS

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Sample:	DUP-080612-A

Lab ID: 10201585004

Collected: 08/06/12 11:00 Received: 08/08/12 09:55 Matrix: Water

								anna. Fidici	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical I	Method: EP	A 200.8 Prep	aration Meth	nod: EF	PA 200.8	•		- ·
Cadmium	0.00061 mg	g/L	0.000080	0.000028	1	08/15/12 15:30	08/17/12 04:34	7440-43-9	
Chromium	0.0047 mg	g/L	0.00050	0.000094	1	08/15/12 15:30	08/17/12 04:34	7440-47-3	
Nickel	0.0078 mg	g/L	0.00050	0.00015	1	08/15/12 15:30	08/17/12 04:34	7440-02-0	
Selenium	2.1 mg	g/L	0.0025	0.00047	5	08/15/12 15:30	08/25/12 08:10	7782-49-2	
Vanadium	0.022 mg	g/L	0.00010	0.000037	1	08/15/12 15:30	08/17/12 04:34	7440-62-2	
Zinc	0.019 mg	g/L	0.0050	0.0010	1	08/15/12 15:30	08/17/12 04:34	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical N	Method: EP	A 200.8 Prep	aration Meth	nod: EF	PA 200.8			
Cadmium, Dissolved	0.00058 mg	g/L	0.000080	0.000028	1	08/15/12 12:07	08/17/12 20:37	7440-43-9	
Calcium, Dissolved	113 mg	g/L	0.20	0.10	10	08/15/12 12:07	08/20/12 14:07	7440-70-2	
Chromium, Dissolved	0.0049 mg	g/L	0.00050	0.000094	1	08/15/12 12:07	08/17/12 20:37	7440-47-3	
Magnesium, Dissolved	24.4 mg	g/L	0.050	0.023	10	08/15/12 12:07	08/20/12 14:07	7439-95-4	В
Nickel, Dissolved	0.0080 mg	g/L	0.00050	0.00015	1	08/15/12 12:07	08/17/12 20:37	7440-02-0	
Selenium, Dissolved	1.8 mg	g/L	0.0050	0.00094	10	- 08/15/12 12:07	08/20/12 14:07	7782-49-2	
Total Hardness by 2340B, Qissolved	383 mg	g/L	0.71	0.36	10	08/15/12 12:07	08/20/12 14:07		
anadium, Dissolved	0.022 mg	g/L	0.00010	0.000037	1	08/15/12 12:07	08/17/12 20:37	7440-62-2	
Zinc, Dissolved	0.019 mg	g/L	0.0050	0.0010	1	08/15/12 12:07	08/17/12 20:37	7440-66-6	В

Date: 12/10/2012 11:49 AM





QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

QC Batch:

MPRP/34582

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples: 10201585001, 10201585002, 10201585003, 10201585004

METHOD BLANK: 1267819

Matrix: Water

Associated Lab Samples: 10201585001, 10201585002, 10201585003, 10201585004

Parameter	er Units R		Reporting Limit	Analyzed	Qualifiers
Cadmium	mg/L	<0.000028	0.000080	08/17/12 03:29	
Chromium	mg/L	< 0.000094	0.00050	08/17/12 03:29	
Nickel	mg/L	< 0.00015	0.00050	08/17/12 03:29	
Selenium	mg/L	< 0.000094	0.00050	08/17/12 03:29	
Vanadium	mg/L	< 0.000037	0.00010	08/17/12 03:29	
Zinc	mg/L	<0.0010	0.0050	08/17/12 03:29	

LABORATO	RY CONTROL SAMPLE:	1267820	•					
	Parameter	- Units	Spike Conc.	LCS ' Result	LCS % Rec	% Rec Limits	Qualifiers	
Cadmium		mg/L	.08	0.077	96	85-115	1	
Chromium		mg/L	.08	0.077	96	85-115		
Nickel		mg/L .	.08	0.078	. 98	85-115		
Selenium		mg/L	.08	0.074	93	85-115	•	
Vanadium		mg/L	.08	0.078	97	85-115		
Zinc		mg/L	.08	0.078	98	85-115		

MATRIX SPIKE & MATRIX	SPIKE DUPLICAT	E: 12678	21		1267822							
Parameter	10 Units	201585001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max	Qual
Cadmium	mg/L	0.00055	.08	.08	0.078	0.078	96	97	70-130			
Chromium	mg/L	0.0056	.08	.08	0.082	0.070	95	95	70-130	.9 .3	20 20	
Nickel	mg/L	0.0078	.08	.08	0.086	0.086	98	98	70-130	.2	20	
Selenium	mg/L	1.7	.08	.08	1.8	1.8	144	129	70-130	.7	20 1	Ē
Vanadium	mg/L	0.022	.08	.08	0.10	0.099	98	96	70-130	1	20	_
Zinc	mg/L	0.018	.08	.08	0.097	0.097	99	99	70-130	.2	20	

Date: 12/10/2012 11:49 AM





QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

QC Batch:

MPRP/34510

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

10201585001, 10201585002, 10201585003, 10201585004

METHOD BLANK: 1265868

Matrix: Water

Associated Lab Samples: 10201585001, 10201585002, 10201585003, 10201585004

Calcium, Dissolved Chromium, Dissolved	Units	Blank Result			Qualifiers			
Cadmium, Dissolved	 mg/L	<0.000028	0.000080	08/17/12 19:16				
Calcium, Dissolved	mg/L	< 0.010	0.020	08/17/12 19:16				
Chromium, Dissolved	mg/L	< 0.000094	0.00050	08/17/12 19:16				
Magnesium, Dissolved	mg/L	0.0030J	0.0050	08/17/12 19:16				
Nickel, Dissolved	mg/L	< 0.00015	0.00050	08/17/12 19:16				
Selenium, Dissolved	mg/L	<0.000094	0.00050	08/17/12 19:16				
Total Hardness by 2340B, Dissolved	mg/L	<0.036	0.071	08/17/12 19:16				
Vanadium, Dissolved	mg/L	< 0.000037	0.00010	08/17/12 19:16				
Zinc, Dissolved	mg/L	0.0011J	0.0050	08/17/12 19:16				

LABORATORY CONTROL SAMP	LE: 1265869		-			-	
Parameter	. Units	Spike Conc.	LCS Result	LCS · % Rec	% Rec Limits	Qualifiers	
Cadmium, Dissolved	mg/L	.08	0.084	105	85-115		
Calcium, Dissolved	mg/L	1	1.1	107	85-115		
Chromium, Dissolved	mg/L	.08	0.081	101	85-115		
Magnesium, Dissolved	mg/L	1	1.1	106	85-115		
Nickel, Dissolved	mg/L	.08	.0.086	108	85-115		
Selenium, Dissolved	mg/L	.08	0.079	99	85-115		
Total Hardness by 2340B, Dissolved	mg/L	6.6	7.0	106	85-115		
Vanadium, Dissolved	mg/L	.08	0.081	101	85-115		
Zinc, Dissolved	mg/L	.08	0.084	105	85-115		

MATRIX SPIKE SAMPLE:	1265872							
Parameter	Units	10201585003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers	
Cadmium, Dissolved	 mg/L	0.0021	.08	0.078	95	70-130		
Calcium, Dissolved	mg/L	122	1	126	410	70-130	E,M1	
Chromium, Dissolved	mg/L	0.0055	.08	0.078	90	70-130		
Magnesium, Dissolved	mg/L ·	26.0	1	26.6	· 56	70-130	M1	
Nickel, Dissolved	mg/L	0.019	.08	0.099	99	70-130		
Selenium, Dissolved	mg/L	1.9	.08	1.9	54	70-130	M1	
Total Hardness by 2340B, Dissolved	mg/L	413	6.6	425	189	70-130		
Vanadium, Dissolved	mg/L	0.035	.08	0.11	93	70-130		
Zinc, Dissolved	mg/L	0.082	.08	0.16	96	70-130		

Date: 12/10/2012 11:49 AM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

MATRIX SPIKE & MATRIX SI	PIKE DUPLICAT	E: 12674	99		1267500							
Parameter	10 Units	201585001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium, Dissolved	mg/L	0.00056	.08	.08	0.084	0.082	105	102	70-130		20	
Calcium, Dissolved	mg/L	114	1	1	123	117	825	310	70-130	4		E.M1
Chromium, Dissolved	mg/L	0.0050	.08	.08	0.086	0.084	101	99	70-130	2		E,₩1
Magnesium, Dissolved	mg/L	25.6	1	1	26.7	26.0	114	48	70-130	3		M1
Nickel, Dissolved	mg/L	0.0079	.08	.08	0.098	0.094	112	108	70-130	4	20	1411
Selenium, Dissolved	mg/L	1.8	.08	.08	1.9	1.9	166	112	70-130	2		M1
Total Hardness by 2340B, Dissolved	mg/L	391	6.6	6.6	416	400	383	147	70-130	4	20	
√anadium, Dissolved	mg/L	0.022	.08	.08	0.10	0.10	103	98	70-130	4	20	
Zinc, Dissolved	mg/L	0.020	.08	.08	0.12	0.11	120	115	70-130	4	20	



QUALIFIERS

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

E

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Date: 12/10/2012 11:49 AM

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Revised: North Maybe Mine

Pace Project No.:

10201585

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10201585001	IA1-30A-080612	EPA 200.8	MPRP/34582	EPA 200.8	ICPM/13386
10201585002	IA1-28A-080612	EPA 200.8	MPRP/34582	EPA 200.8	ICPM/13386
10201585003	IA1-55-080612	EPA 200.8	MPRP/34582	EPA 200.8	ICPM/13386
10201585004	DUP-080612-A	EPA 200.8	MPRP/34582	EPA 200.8	ICPM/13386
10201585001	IA1-30A-080612	EPA 200.8	MPRP/34510	EPA 200.8	ICPM/13383
10201585002	IA1-28A-080612	EPA 200.8	MPRP/34510	EPA 200.8	ICPM/13383
10201585003	IA1-55-080612	EPA 200.8	MPRP/34510	FPA 200 8	ICPM/13383
10201585004	DUP-080612-A	EPA 200.8	MPRP/34510		ICPM/13383

Date: 12/10/2012 11:49 AM

Page 16 of 16

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CHAIN-OF-CUSTOS7 / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



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Section A Required Client Information:	Section E Required		1) (<u>. </u>					ion C ce info	mation	ı:											Page	e :	/	of /		
Company: Agrium/Nu-West	Report To:	James.\	Milliams@	agrium.co	om			Atten	tion:	Acc	count	s Pay	yable									<u> </u>					
Address: 3010 Conda Rd	Сору То:	Julie.Lin	coin@ae	com.com				Com	pany N	lame:	Nu-V	Vest	Indus	tries,	, Inc) .		REG	ULAT	ORY	AGE	NÇY	-				
Soda Springs, ID. 83276	† — —		·					Addr	9S8:	Cal	gary,	Albe	≆rta, C	anad	da T	T2H 3B	9	Г	NPDE	s r	GF	ROUN	ID WAT	TER _	DRINKIN	G WATER	
Email To: Mitchell.Hart@agrium.com	Purchase	Order No.:	480005	3265	-			Pace Refer		No	_040	612_	NMM	sw	, 		_				T RC			•	OTHER		
Phone: 208-547-3935 Fax:	Project Na	me: No	rth Maybe	Mine		i		Pace	Project	Sal	ly He	inje							Locat								
Requested Due Date/TAT: 7-10 Business Days	Project Nu	ımber:				<u> </u>		Manag Pace i	Profile 9) :		<u> </u>							STAT	- 1		ID					
	-I · · ·							L						Т		Reque	sted A	naly		_ :_	d (Y/N	1)			HANALAN		
Section D Valid Matrix Required Client Information MATRIX	Codes CODE	codes to left)		COLL	ECTED					Pre:	serva	tives		X/N								\prod					
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WASTE WATER PRODUCT SOIL/SOUD	P	Ag Ag	STA	POBITE VRT	COMPOS END/GR	ME ME	COLLECTION							ł]	Įξ	:			,
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(A-Z, 0-9 / ,-) OTHER	AR OT	1 w					P AT	# OF CONTAINERS						Test	Į			1	1		Ì		i. E	1			
Sample (De MUST BE UNIQUE TISSUE	TS	CODE	1 .				TEMP	Ž	Z.			1		88		- 1		- 1					ਤੁ				i
TEN #		MATRIX SAMPLE					SAMPLE	[원	1986	HNO ₃]	520	Methanol	Analysis	9 4-1								gna				
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3 IA1-55-080612		WT 6	08/06/	1/2	1205			2		۲].	>	₹			\top			П		1		00	3
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					SIGNATURE				m	\mathcal{B}			li		D (1	ATE Sig	ned	981	00	/12		\exists	Temp	Received on toe (Y/N)	Custody Seeled Cooler (Y/N)	Semples for	

Analyte	Analytical	Conta	iner Size			Holding Time	Detection
	Method	Total	Dissolved	Material	Preservative	riolang rine	Limit/Units
Cadmium - total & dissolved*	EPA M200.8						0.1 μg/L
Chromium – total & dissolved*	EPA M200.8			·			
Nickel - total & dissolved*	EPA M200.8	050					0.1 μg/L
Selenium – total & dissolved*	EPA M200.8	250 ml		Polyethylene	Nitric Acid	180 Days	0.6 µg/L
Vanadium – total & dissolved*	EPA M200.8		250 ml*	',	<u>.</u>		0.1 μg/L
Zinc – total & dissolved*	EPA M200.8					1	0.2 μg/L
Hardness	EPA SM2340B (Calculated)			Polyethylene	Nitric Acid	180 Days	2 μg/L 2 mg/L
рН	Field	1		_	<u> </u>		obounds and a vide
ORP	Field	į	-	-			standard units
Dissolved Oxygen	Field	<u> </u>	<u> </u>				mV
Conductivity	Field		 		<u> </u>	Analyze immediately	mg/L
Temperature	Field				<u> </u>		µmhos/cm
Turbidity	Field		 	· -	-	·	*C
	l Lieid			-	-		NTU

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

 μ g/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

μmhos/cm = micromhos per centimeter

°C = degrees Celsius

NTU = nephelometric turbidity units

Pace Analytical*

Document Name:
Sample Condition Upon Receipt Form
Document No.:

Document No.: F-MN-L-213-rev.03 Page 1 of 1
Issuing Authority:
Pace Minnesota Quality Office

Upon Receipt Client Name:			Project	:#:\@	WO#:10201585
agrium			_		
Courier: EEE Ex UPS	USPS		Client		
Commercial Pace	Other	:		. 16	10201585
Tracking Number: 4569 1405 9555	.` 				
Custody Seal on Cooler/Box Present?	No	Seals I	ntact?	Yes	No Optional: Proj. Due Date: Proj. Name:
Packing Material: Bubble Wrap Bubble Ba	gs 🔲N	lone [_Other:_		Temp Blank? ☐ Yes ☐ No
Thermometer Used: \$\int 80344042 \$\int 80512447\$	Type of	Ico: 1	Wet [Blue	
	•	. 7			None Samples on ice, cooling process has beg
Cooler Temperature: 100 Biological Tissue Fro	izen?	Yes	No Da	ate and in	nitials of Person Examining Contents:
	•				Commenter
Chain of Custody Present?	DE XOS	□No	□N/A	1.	Comments:
Chain of Custody Filled Out?	D (es	□No	□N/A	2.	
Chain of Custody Relinquished?	Ves	□No	□N/A	1	
Sampler Name and Signature on COC?	ZKes	□No	□N/A	4.	· · · · · · · · · · · · · · · · · · ·
Samples Arrived within Hold Time?	Yes	□No	□N/A	5.	
Short Hold Time Analysis (<72 hr)?	□Yes	DX40	□N/A	6.	
Rush Turn Around Time Requested?	Yes	DXV0	□N/A	7.	
Sufficient Volume?	"\D\Yes	□No	□N/A	8.	
Correct Containers Used?	Yes	□No	□N/A	9.	
-Pace Containers Used?		□No	□N/A	. -	
Containers Intact?	(XX)es	□No	□n/A	10.	
Filtered Volume Received for Dissolved Tests?	□Yes	□No	DAVA	11.	
Sample Labels Match COC?	Tyes	□No	□N/A	12.	
-Indudes Date/Time/ID/Analysis Matrix:	<u> </u>				
All containers needing acid/base preservation have	15Kres	□No	□N/A	13.	⊠HNO₃ □H₂SO₄ □NaOH □HCI
been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in	54.00		<u> </u>	t	722
compliance with EPA recommendation?	Eves	□No	□N/A	Sample	•
(HNO ₂ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease,	7 ~			124	1-30,78,55 Pup
WI-DRO (water)	☐Yes	1200		Initial w	then completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	Yes	□No	.DZN/A	14.	
Trip Blank Present?	☐Yes	□No	AVA	15.	
Trip Blank Custody Seals Present?	Yes	□No	IQW /A		
Pace Trip Blank Lot # (if purchased):		~ ~		<u> </u>	
CLIENT NOTIFICATION/RESOLUTION					Field Data Required? Yes No
Person Contacted:				Date/Time	e:
Comments/Resolution:					
				·	
		 		···	
Brainet Manager Peylow		4.			

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services, Inc.

Pace Project ID: Data Validator:

10204498 Chris Davis

Date Validated:

December 6, 2012

Date Valluateu.

T. U. T. 1

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters

and Methods:

- Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8
 Dissolved Cations (calcium, magnesium); 200.8
- 2. Dissolved Cattons (catefulli, magnesi

3. Hardness; SM2340B

Sample Identifications:

IA1-30A-090412

IA1-28A-090412 IA1-55-090412

DUP-090412-A (field duplicate for IA1-28A-090412)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected for all laboratory reagent blanks (LRBs).

Qualification: No qualification was necessary.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable with the following exceptions. The percent recoveries (%Rs) of 128% and 130% for dissolved zinc in the matrix spike (MS)/matrix spike duplicate (MSD) and 126% for dissolved vanadium in the MS analyses of sample IA1-30A-090412 (10204498-001) exceeded the 75-125%R control limits for metals.

Qualification: The associated results for dissolved vanadium and zinc were qualified as estimated (J+) for potential minor high bias. The associated results for total vanadium and zinc were also qualified as estimated (J+) for potential minor high bias as no project-specific MS/MSD was analyzed for total metals for this SDG.

Note that the percent recoveries (%Rs) of 1620% and 465% for dissolved calcium, 489% and 426% for dissolved magnesium in the MS/MSD, and 347% for dissolved selenium in the MS analyses of sample IA1-30A-090412 (10204498-001) exceeded the 75-125%R control limits for metals. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. As the sample results exceeded four times the spike, no qualifiers are applicable.

6. OVERALL ASSESSMENT

No other issues were identified.





September 14, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: North Maybe Mine

Pace Project No.: 10204498

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on September 06, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Enclosures

cc: Cindy Emmons, Norwest Corporation James Williams, Agrium





Pace Analytical Services, Inc. 1700 Elm Street - Suite 200

Minneapolis, MN 55414

(612)607-1700

CERTIFICATIONS

Project:

North Maybe Mine

Pace Project No.:

10204498

Minnesota Certification IDs

1700 Elm Street SE Suite 200. Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064 Arizona Certification #: AZ-0014 Arkansas Certification #: 88-0680 California Certification #: 01155CA

Colorado Certification #Pace Connecticut Certification #: PH-0256 EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605 Georgia Certification #: 959 Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: E-10167
Kansas Certification #: E-0000 Louisiana Certification #: 03086

Louisiana Certification #: LA080009 Maine Certification #: 2007029 Maryland Certification #: 322 Michigan DEQ Certification #: 9909 Minnesota Certification #: 027-053-137 Mississippi Certification #: Pace

Montana Certification #: MT CERT0092 Nebraska Certification #: Pace Nevada Certification #: MN_00064 Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL 101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001

Oregon Certification #: MN200001 Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563 Puerto Rico Certification Tennessee Certification #: 02818

Texas Certification #: T104704192 Utah Certification #: MN00064 Virginia/DCLS Certification #: 002521 Virginia/VELAP Certification #: 460163 Washington Certification #: C754 West Virginia Certification #: 382 Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project:

North Maybe Mine

Pace Project No.:

10204498

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10204498001	IA1-30A-090412	Water	09/04/12 10:45	09/06/12 10:05
10204498002	IA1-28A-090412	Water	09/04/12 11:00	09/06/12 10:05
10204498003	IA1-55-090412	Water	09/04/12 11:25	09/06/12 10:05
10204498004	DUP-090412-A	Water	09/04/12 10:30	09/06/12 10:05





SAMPLE ANALYTE COUNT

Project:

North Maybe Mine

Pace Project No.:

10204498

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10204498001	IA1-30A-090412	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0204498002	IA1-28A-090412	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0204498003	IA1-55-090412	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
0204498004	DUP-090412-A	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M

REPORT OF LABORATORY ANALYSIS



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10204498

Method:

EPA 200.8

Description: 200.8 MET ICPMS Client: Date:

Agrium- Nu-West

September 14, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Page 5 of 16



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10204498

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client:

Agrium- Nu-West September 14, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/35057

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10204498001,10204616007

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1283451)
 - Magnesium, Dissolved
- MS (Lab ID: 1283453)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
- MSD (Lab ID: 1283452)
 - · Magnesium, Dissolved

M6: Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

- MS (Lab ID: 1283451)
 - Calcium, Dissolved
 - Selenium, Dissolved
- MSD (Lab ID: 1283452)
 - · Calcium, Dissolved

REPORT OF LABORATORY ANALYSIS

Page 6 of 16

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10204498

Method:

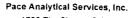
EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: Date: Agrium- Nu-West September 14, 2012

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.





1700 Elm Street - Suite 200 Minneapolis, MN 55414

(612)607-1700

ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10204498

Sample:	IA1-30A-090412
	S

Sample: IA1-30A-090412	Lab ID: 1020449	8001 Collect	ed: 09/04/1	2 10:45	Received: 09	/06/12 10:05 M	atrix: Water	
Parameters	Results Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method: I	EPA 200.8 Pre	paration Meth	nod: EP	A 200.8			
Cadmium	0.00055 mg/L	0.000080	0.000028	1	09/08/12 08:58	09/12/12 03:25	7440-43-9	
Chromium	0.0039 mg/L	0.00050	0.000094	1	09/08/12 08:58	09/12/12 03:25	7440-47-3	
Nickel	0.0069 mg/L	0.00050	0.00015	1	09/08/12 08:58	09/12/12 03:25	7440-02-0	
Selenium	1.9 mg/L	0.0025	0.00047	5	09/08/12 08:58	09/12/12 03:38	7782-49-2	
Vanadium	0.020 mg/L	0.00010	0.000037	1	09/08/12 08:58	09/12/12 03:25	7440-62-2	
Zinc	0.018 mg/L	0.0050	0.0010	1	09/08/12 08:58	09/12/12 03:25	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Method: E	EPA 200.8 Prep	paration Meth	od: EP	A 200.8			
Cadmium, Dissolved	0.00055 mg/L	0.000080	0.000028	1	09/08/12 08:57	09/12/12 00:47	7440-43-9	•
Calcium, Dissolved	126 mg/L	0.50	0.25	25	09/08/12 08:57	09/12/12 18:23	7440-70-2	M6
Chromium, Dissolved	0.0044 mg/L	0.00050	0.000094	1	09/08/12 08:57	09/12/12 00:47	7440-47-3	
Magnesium, Dissolved	27.1 mg/L	0.025	0.012	5	09/08/12 08:57	09/12/12 18:07	7439-95-4	M1
Nickel, Dissolved	0.0071 mg/L	0.00050	0.00015	1	09/08/12 08:57	09/12/12 00:47	7440-02-0	****
Selenium, Dissolved	1.9 mg/L	0.0025	0.00047	5	09/08/12 08:57	09/12/12 18:07		М6
Total Hardness by 2340B, Dissolved	427 mg/L	1.8	0.89	25	09/08/12 08:57	09/12/12 18:23		
Vanadium, Dissolved	0.022 mg/L	0.00010	0.000037	1	09/08/12 08:57	09/12/12 00:47	7440-62-2	
Zinc, Dissolved	0.017 mg/L	0.0050	0.0010	1	09/08/12 08:57	09/12/12 00:47		

Date: 09/14/2012 03:06 PM

REPORT OF LABORATORY ANALYSIS

Page 8 of 16

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Project:

North Maybe Mine

Pace Project No.:

10204498

1 400 1 10	geet No	10207730
Sample:	IA1-28A	090412

Lab ID: 10204498002

Collected: 09/04/12 11:00 Received: 09/06/12 10:05 Matrix: Water

	245 151	.0201-000	0011001	Cu. 00/04/1	2 11.00	received. 55	100/12 10:03 10	atrix. VVater	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical N	viethod: EP	A 200.8 Prep	paration Meth	hod: EF	PA 200.8			
Cadmium	0.0015 mg	g/L	0.000080	0.000028	1	09/08/12 08:58	09/12/12 03:42	7440-43-9	
Chromium	0.0049 mg	g/L	0.00050	0.000094	1	09/08/12 08:58	09/12/12 03:42	7440-47-3	
Nickel	0.016 mg	g/L	0.00050	0.00015	1	09/08/12 08:58	09/12/12 03:42	7440-02-0	
Selenium	2.0 mg	g/L	0.0025	0.00047	5	09/08/12 08:58	09/12/12 03:46	7782-49-2	
Vanadium	0.035 mg	g/L	0.00010	0.000037	1	09/08/12 08:58	09/12/12 03:42	7440-62-2	
Zinc	0.048 mg	g/L	0.0050	0.0010	1	09/08/12 08:58	09/12/12 03:42	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical N	Method: EP	A 200.8 Prep	aration Meth	nod: EP	PA 200.8			
Cadmium, Dissolved	0.00086 mg	_J /L	0.000080	0.000028	1	09/08/12 08:57	09/12/12 01:04	7440-43-9	
Calcium, Dissolved	140 mg	J/L	0.20	0.10	10	09/08/12 08:57	09/12/12 18:27	7440-70-2	
Chromium, Dissolved	0.0049 mg	J/L	0.00050	0.000094	1	09/08/12 08:57	09/12/12 01:04	7440-47-3	
Magnesium, Dissolved	27.2 mg	ı/L	0.025	0.012	5	09/08/12 08:57	09/12/12 01:08	7439-95-4	
Nickel, Dissolved	0.015 mg	J/L	0.00050	0.00015	1	09/08/12 08:57	09/12/12 01:04	7440-02-0	
Selenium, Dissolved	2.1 mg	ı/L	0.0025	0.00047	5	09/08/12 08:57	09/12/12 01:08	7782-49-2	
Total Hardness by 2340B, Dissolved	462 mg	ı/L	0.71	0.36	10	09/08/12 08:57	09/12/12 18:27		
anadium, Dissolved	0.036 mg	ı/L	0.00010	0.000037	1	09/08/12 08:57	09/12/12 01:04	7440-62-2	
Zinc, Dissolved	0.034 mg	ı/L	0.0050	0.0010	1	09/08/12 08:57	09/12/12 01:04	7440-66-6	
· ·									





Project:

North Maybe Mine

Pace Project No.:

10204498

Sample: IA1-55-090412	Lab ID: 102	04498003 Collec	ted: 09/04/1	2 11:25	Received: 09	/06/12 10:05 M	atrix: Water	
Parameters	Results U	nits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Meth	nod: EPA 200.8. Pre	paration Met	hod: EP	A 200.8			-
Cadmium	0.0020 mg/L	0.000080	0.000028	1	09/08/12 08:58	09/12/12 03:49	7440-43-9	
Chromium	0.0049 mg/L	0.00050	0.000094	1	09/08/12 08:58	09/12/12 03:49		
Nickel	0.017 mg/L	0.00050	0.00015	1	09/08/12 08:58			
Selenium	2.0 mg/L	0.0025	0.00047	5	09/08/12 08:58			
/anadium	0.034 mg/L	0.00010	0.000037	1	09/08/12 08:58	09/12/12 03:49		
Zinc	0.077 mg/L	0.0050	0.0010	1	09/08/12 08:58	09/12/12 03:49		
200.8 MET ICPMS, Dissolved	Analytical Meth	od: EPA 200.8 Prep	paration Meth	nod: EP/	A 200.8			
Cadmium, Dissolved	0.0021 mg/L	0.000080	0.000028	1	09/08/12 08:57	09/12/12 01:12	7440-43-0	
Calcium, Dissolved	123 mg/L	0.20	0.10	10	09/08/12 08:57	09/12/12 18:32		
Chromium, Dissolved	0.0050 mg/L	0.00050	0.000094	1	09/08/12 08:57			
Magnesium, Dissolved	25.8 mg/L	0.025	0.012	5	09/08/12 08:57		_	
lickel, Dissolved	0.018 mg/L	0.00050	0.00015	1	09/08/12 08:57	09/12/12 01:12		
Selenium, Dissolved	2.0 mg/L	0.0025	0.00047	5	09/08/12 08:57	09/12/12 01:16		
otal Hardness by 2340B, Dissolved	415 mg/L	0.71	0.36	10	09/08/12 08:57	09/12/12 18:32	1102-40-2	
/anadium, Dissolved	0.034 mg/L	0.00010	0.000037	1	09/08/12 08:57	09/12/12 01:12	7440-62-2	
inc, Dissolved	0.077 mg/L	0.0050	0.0010	1	09/08/12 08:57	09/12/12 01:12		

Date: 09/14/2012 03:06 PM





Project:

North Maybe Mine

Pace Project No.:

10204498

-			_		
٤	Sample: DU	IP-090	4	12-	Α

Collected: 09/04/12 10:30 Received: 09/06/12 10:05 Matrix: Water

Sample: DOP-090412-A	Lau ID. II	UZU4490UU4 Collecti	eu. 09/04/1	2 10.50	Received. Usi	00/12 TO.05 WI	atnx. vvater	
Parameters	Results	Units PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical M	ethod: EPA 200.8 Prep	aration Met	hod: EP	A 200.8			•
Cadmium	0.0014 mg/	L 0.000080	0.000028	1	09/08/12 08:58	09/12/12 04:15	7440-43-9	
Chromium	0.0051 mg/	L 0.00050	0.000094	1	09/08/12 08:58	09/12/12 04:15	7440-47-3	
Nickel	0.015 mg/	L 0.00050	0.00015	1	09/08/12 08:58	09/12/12 04:15	7440-02-0	
Selenium	1.9 mg/	L 0.0025	0.00047	5	09/08/12 08:58	09/12/12 04:19	7782-49-2	
Vanadium	0.034 mg/	L 0.00010	0.000037	1	09/08/12 08:58	09/12/12 04:15	7440-62-2	
Zinc	0.046 mg/	L 0.0050	0.0010	1	09/08/12 08:58	09/12/12 04:15	7440-66-6	
200.8 MET ICPMS, Dissolved	Analytical Mo	ethod: EPA 200.8 Prep	aration Met	hod: EP	A 200.8			
Cadmium, Dissolved	0.00083 mg/	L 0.000080	0.000028	1	09/08/12 08:57	09/12/12 01:37	7440-43-9	
Calcium, Dissolved	118 mg/	L 0.20	0.10	10	09/08/12 08:57	09/12/12 18:36	7440-70-2	
Chromium, Dissolved	0.0047 mg/	L 0.00050	0.000094	1	09/08/12 08:57	09/12/12 01:37	7440-47-3	
Magnesium, Dissolved	25.4 mg/	L 0.025	0.012	5	09/08/12 08:57	09/12/12 01:41	7439-95-4	
Nickel, Dissolved	0.014 mg/	L 0.00050	0.00015	1	09/08/12 08:57	09/12/12 01:37	7440-02-0	
Selenium, Dissolved	2.0 mg/	L 0.0025	0.00047	5	09/08/12 08:57	09/12/12 01:41	7782-49-2	
Total Hardness by 2340B,	398 mg/	L 0.71	0.36	10	09/08/12 08:57	09/12/12 18:36		
anadium, Dissolved	0.034 mg/	L 0.00010	0.000037	1	09/08/12 08:57	09/12/12 01:37	7440-62-2	
Zinc, Dissolved	0.032 mg/	L 0.0050	0.0010	1	09/08/12 08:57	09/12/12 01:37	7440-66-6	

Date: 09/14/2012 03:06 PM





QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10204498

QC Batch:

MPRP/35059

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples:

10204498001, 10204498002, 10204498003, 10204498004

METHOD BLANK: 1283458

Matrix: Water

Associated Lab Samples:

10204498001, 10204498002, 10204498003, 10204498004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	mg/L	<0.000028	0.000080	09/12/12 03:21	
Chromium	mg/L	<0.000094	0.00050	09/12/12 03:21	
Nickel	mg/L	<0.00015	0.00050	09/12/12 03:21	
Selenium	mg/L	< 0.000094	0.00050	09/12/12 03:21	
Vanadium	mg/L	<0.000037	0.00010	09/12/12 03:21	
Zinc	mg/L	<0.0010	0.0050	09/12/12 03:21	

LABORATORY	CONTROL SAMPLE:	1283459	

Parameter	Units	Spike Conc.	LCS Résult	LCS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	.08	0.081	101	85-115	
Chromium	mg/L	.08	0.079	98	85-115	
lickel	mg/L	.08	0.079	98	85-115	
elenium	mg/L	.08	0.082	102	85-115	•
/anadium	mg/L	.08	0.078	98	85-115	
Zinc	mg/L	.08	0.082	103	85-115	

MATRIX SPIKE SAMPLE:	1283462						
Parameter	Units	10204616007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	<0.000028	.08	0.078	98	70-130	
Chromium	mg/L	0.00028J	.08	0.077	96	70-130	
Nickel	mg/L	< 0.00015	.08	0.078	98	70-130	
Selenium	mg/L	<0.000094	.08	0.076	95	70-130	
Vanadium	mg/L	0.00026	.08	0.076	95	70-130	
Zinc	mg/L	<0.0010	.08	0.084	105	70-130	

Date: 09/14/2012 03:06 PM



QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10204498

QC Batch:

MPRP/35057

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

10204498001, 10204498002, 10204498003, 10204498004

METHOD BLANK: 1283449

Matrix: Water

Associated Lab Samples: 10204498001, 10204498002, 10204498003, 10204498004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium, Dissolved	mg/L	<0.000028	0.000080	09/12/12 00:43	
Calcium, Dissolved	mg/L	<0.010	0.020	09/12/12 00:43	
Chromium, Dissolved	mg/L	< 0.000094	0.00050	09/12/12 00:43	
Magnesium, Dissolved	mg/L	< 0.0023	0.0050	09/12/12 00:43	
Nickel, Dissolved	mg/L	< 0.00015	0.00050	09/12/12 00:43	
Selenium, Dissolved	mg/L	< 0.000094	0.00050	09/12/12 00:43	
Total Hardness by 2340B, Dissolved	mg/L	<0.036	0.071	09/12/12 00:43	
Vanadium, Dissolved	mg/L	< 0.000037	. 0.00010	09/12/12 00:43	
Zinc, Dissolved	mg/L	< 0.0010	0.0050	09/12/12 00:43	•

ABORATORY CONTROL SAMP	LE: 1283450					
Parameter ·	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	.08	0.080	100	85-115	
Calcium, Dissolved	mg/L	1	0.98	98	85-115	
Chromium, Dissolved	mg/L	.08	0.079	98	85-115	
agnesium, Dissolved	mg/L	1	1.0	100	85-115	
ckel, Dissolved	mg/L	.08	0.079	99	85-115	
lenium, Dissolved	mg/L	.08	0.080	100	85-115	
tal Hardness by 2340B, ssolved	mg/L	6.6	6.6	99	85-115	
anadium, Dissolved	mg/L	.08	0.078	98	85-115	
nc, Dissolved	mg/L	.08	0.082	103	85-115	

MATRIX SPIKE & MATRIX SF	PIKE DUPLICAT	E: 12834	3451 12834									
			MS Spike	-	MS	MSD	MS	MSD	% Rec	Max		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	RPD	Qual
Cadmium, Dissolved	mg/L	0.00055	.08	.08	0.098	0.098	121	122	70-130	.5	20	
Calcium, Dissolved	mg/L	126	1	1	142	131	1620	465	70-130	8	20	M6
Chromium, Dissolved	mg/L	0.0044	.08	.08	0.10	0.10	122	123	70-130	.6	20	
Magnesium, Dissolved	mg/L	27.1	1	1	32.0	31.4	489	423	70-130	2	20	M1
Nickel, Dissolved	mg/L	0.0071	.08	.08	0.11	0.10	125	122	70-130	2	20	
Selenium, Dissolved	mg/L	1.9	.08	.08	2.2	2.0	347	121	70-130	9	20	M6
Total Hardness by 2340B, Dissolved	mg/L	427	6.6	6.6	487	456	914	439	70-130	7	20	
Vanadium, Dissolved	mg/L	0.022	.08	.08	0.12	0.12	126	125	70-130	.2	20	
Zinc, Dissolved	mg/L	0.017	.08	.08	0.12	0.12	128	130	70-130	1	20	

Date: 09/14/2012 03:06 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.: 10204498

MATRIX SPIKE SAMPLE:	1283453						
Parameter	Units	10204616007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium, Dissolved	mg/L	<0.000028	.08	0.079	98	70-130	
Calcium, Dissolved	mg/L	54.7	1	56.4	175	70-130	M1
Chromium, Dissolved	mg/L	0.00029J	.08	0.078	97	70-130	
Magnesium, Dissolved	mg/L	11.1	1	12.5	140	70-130	M1
Nickel, Dissolved	mg/L	<0.00015	.08	0.077	97	70-130	
Selenium, Dissolved	mg/L	< 0.000094	.08	0.081	101	70-130	
Total Hardness by 2340B, Dissolved	mg/L	182	6.6	193	154	70-130	
Vanadium, Dissolved	mg/L	0.00029	.08	0.078	97	70-130	
Zinc, Dissolved	mg/L	0.0017J	.08	0.081	100	70-130	



QUALIFIERS

Project:

North Maybe Mine

Pace Project No.:

10204498

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M

Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

M1

Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

М6

Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.



Pace Analytical Services, Inc. 1700 Elm Street - Suite 200

Minneapolis, MN 55414 (612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

North Maybe Mine

Pace Project No.:

10204498

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10204498001	IA1-30A-090412	EPA 200.8	MPRP/35059	EPA 200.8	ICPM/13678
10204498002	IA1-28A-090412	EPA 200.8	MPRP/35059	EPA 200.8	ICPM/13678
10204498003	IA1-55-090412	EPA 200.8	MPRP/35059	EPA 200.8	ICPM/13678
10204498004	DUP-090412-A	EPA 200.8	MPRP/35059	EPA 200.8	ICPM/13678
10204498001	IA1-30A-090412	EPA 200.8	MPRP/35057	EPA 200.8	ICPM/13679
10204498002	IA1-28A-090412	EPA 200.8	MPRP/35057	EPA 200.8	ICPM/13679
10204498003	IA1-55-090412	EPA 200.8	MPRP/35057	EPA 200.8	ICPM/13679
10204498004	DUP-090412-A	EPA 200.8	MPRP/35057	EPA 200.8	ICPM/13679

Date: 09/14/2012 03:06 PM

REPORT OF LABORATORY ANALYSIS

Page 16 of 16

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10204498

	d Client Information:	Section B Required Project Information:	•	Section C Invoice Inform	nation:		_	Pag	ge: <i> </i>	af /
Compan		Report To: James Williams@	agrium.com	Attention:	Accounts Payable]			
Address:	3010 Conda Rd	Copy To: Julie Lincoln@aec	om.com	Company Na	me: Nu-West Industr	ies, Inc.	REGULATORY	AGENCY	-	
	Soda Springs, ID. 83276			Address:	Calgary, Alberta, Ca	ınada T2H 3B9	☐ NPDES	GROUN	ND WATER	DRINKING WATER
Email To	Mitchell.Hart@agrium.com	Purchase Order No.: 4800058	265	Pace Quote Réference:	Nor_040612_NMM	SW	UST	RCRA		OTHER
Phone:	208-547-3935 Fax	Project Name: North Maybe	Mine	Pace Project Manager:	Sally Heinje		Site Location			
Request	ed Due Date/TAT: 7-10 Business Days	Project Number:		Pace Profile #:			STATE:	ID.		
Щ.			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	Requested	Analysis Filtere	d (Y/N)		ananastraanamanana Giitiitiitii
	Section D Valid Matrix C	odes 🗐 n	· · · · · · · · · · · · · · · · · · ·			N A		i i		
	Required Client Information MATRIX DRINKING WATER	COMP B COMP	COLLECTED	_₹ │ ∤ _{──}	Preservatives	\$				li kili kili kili kili kili kili kili k
٠.	WATER		OSITÉ COMPOSITE	SS						
		P P P P P P P P P P P P P P P P P P P	RT END/GRAB		1	୍ଥିତ			Residual Chlorine (Y/N)	
	CAMDIE 157 WPE	or 83 80 80 80 80 80 80 80 80 80 80 80 80 80		S 8		(enclosed)			<u>a</u>	
<u> </u>	. AK	CODE CODE		CONTAINERS esserved		(e) H	1111		pol	,
	Shinds to Most be onique							.	a C	••
*	•	MATRIX SAMPLE 1	TIME	# OF CONTAL Unpreserved H-SO	HNO ₃ HCI NaOH Na ₂ S ₂ O ₃ Methanol Other				sidu	
ITEM					Met Nac	<u>→</u> <u>r</u>			Pace	Project No./ Lab I.D.
1	IAI-30A-090412	WT G 09/04/		2			1 1 1	$\perp \perp$	1020	4448001
2	IAI-28A-090412	wit 6 09/04		2	V		1-1-1-1			003
3	IA1-55-090412	WTG 09/04	12	2		X	+			003
4	DUP-090412-A	wi G 09/04	12 1030	2			+++++			004
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12	ADDITIONAL COMMENTS	RELINQUISHED BY	AFFILIATION DATE	TIME	ACCEPTE	D BY / AFFILIATION	DATE	TIME	SAMP	LE CONDITIONS
cooler id					151 Dag		9.6.12		 	L C L C
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1		• .								
- /									1	
<u></u>			SAMPLER NAME AND SIGNAT	URE	1				0 =	<u> </u>
			PRINT Name of SAMPLI	ER: James B V	Miliame				Temp in °C Received on Ice (Y/N)	Custody (YN) (YN) simples Intact (YN)
		•	SIGNATURE of SAMPLI	,	P: file:	DATE Signed	09/01	7	Temp in Received Ice (Y/N	Sample (%)

Table 4-1 Surface water Analyte List for April, May, June, August, September and October

Analyte	Analytical Method	Conta	iner Size	Container	Preservative	Holding Time	Detection
	Method	Total	Dissolved	Material		Tiolang time	Limit/Units
Cadmium – total & dissolved*	EPA M200.8			 			
Chromium – total & dissolved*	EPA M200.8	:		[· . [0.1 µg/L
Nickel – total & dissolved*	EPA M200.8						0.1 µg/L
Selenium – total & dissolved*	EPA M200.8	250 ml		Polyethylene	Nitric Acid	180 Days	0.6 µg/L
Vanadium – total & dissolved*	EPA M200.8		250 ml*				0.1 μg/L
Zinc – total & dissolved*	EPA M200.8	•				!	0.2 μg/L
			-				2 μg/L
Hardness	EPA SM2340B (Calculated)	.		Polyethylene	Nitric Acid	180 Days	2 mg/L
рН	Field	_					
ORP	Field					·	standard units
Dissolved Oxygen	Field		 				mV
Conductivity	Field		 		-	Analyze immediately	mg/L
Temperature	Field		 			,	µmhos/cm
Turbidity	Field		 	-			°C
	1.10/4		<u> </u>	<u> </u>			NTU

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

μg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

µmhos/cm = micromhos per centimeter

°C = degrees Celsius

NTU = nephelometric turbidity units



Project Manager Review:

hold, incorrect preservative, out of temp, incorrect containers)

Document Name:

Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.04 Document Revised: 22Aug2012

Page 1 of 1

Issuing Authority: Pace Minnesota Quality Office

Sample Condition Client Name: Upon Recent			Project	#:	LIO#	. 104	2044	00	<u> </u>
agrism		-						30	
Courter: Ped Ex UPS	USPS		Client						
Tracking Number: 4569 1406 430	Other	;			1020449	51 1551 18 8 			
Custody Seal on Cooler/Box Present?	No	Seals I	ntact? [Z]¥es	□No [Optional:	Proj. Due (Date: Proj.	Name:
Packing Material: Usubble Wrap Bubble Ba	gs 🔲 N	lone []Other:			_	Temp Blank	a ∐yes	- □No
Thermometer Used: 488A912167504 80512447	Type of	Ice: [Wet [Blue	None	Sam	pies on ice, o	cooling proces	s has begu
Cooler Temperature: 23 Biological Tissue Fro	zen?	Yes	No Da	te and	initials of Po	erson Exami	ning Conten	is: <u>(51</u> 0	
Chain of Custody Present?	Ø ₹es	□No		1.	- 	(omments:		
Chain of Custody Filled Out?	ZZ ves	No	N/A □N/A	2,			·	· · · · · · · · · · · · · · · · · · ·	
Chain of Custody Relinquished?	[]xes	□No		3.		<u> </u>			
Sampler Name and/or Signature on COC?	[Z]xes	□No	□N/A	4.					
Samples Arrived within Hold Time?	Dives	No	□N/A	5.	· · ·				
Short Hold Time Analysis (<72 hr)?	Yes		□N/A	6.	······································				
Rush Turn Around Time Requested?	□Yes	[Z]H6	□N/A	7.					
Sufficient Volume?	□ yes	□No	□N/A	8.					<u> </u>
Correct Containers Used?	□¥/es	□No	□N/A	9,					
-Pace Containers Used?	L Yes	□No	□N/A	"					
Containers Intact?	Ľ √es	□No	□N/A	10.				· ·	· ·
Filtered Volume Received for Dissolved Tests?	Yes	□No	[Z]N/A-	11.					
Sample Labels Match COC?	[Z]yes	□No	□N/A	12.					
-Includes Date/Time/ID/Analysis Matrix:					•				
All containers needing acid/base preservation have	□]y€s	□No	□N/A	13.	·	ZHÍNO,	□u so		
been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in			٨٧٠	Sampl		2.2	∐H₂SO4	□NaOH	⊟на
compliance with EPA recommendation?	Yes	□No	□N/A		4,28	x. 55	Din		
(HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease,					11100	1/-	•		
WI-DRO (water)	☐Yes	MP		Initial	when comple	eted: CS	Lot#of		
Headspace in VOA Vials (>6mm)?	Yes	□No	ZMA	14.			preserv	arive.	
Trip Blank Present?	☐Yes	□No	[ÚN]A	15.					
Trip Blank Custody Seals Present?	☐Yes	∏No	TANA						
Pace Trip Blank Lot # (if purchased):									
CLIENT NOTIFICATION/RESOLUTION						Sold Date	. Danislanda 1		
Person Contacted:		• •	D	ate/∏n	ne:	, riesu Data	required?	□Yes □No	•
Comments/Resolution:	•		 -	- CC/ 1111					
								 	
						·			
									
					······································			· · · · · · · · · · · · · · · · · · ·	

Note: Whenever there is a discrepancy affecting North Carolina compilance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (1.e out

Date:

DATA VALIDATION REPORT

Company:

AECOM Environment

Project Name:

Agrium, Inc.

Laboratory:

Pace Analytical Services, Inc.

Pace Project ID:

10207426

Data Validator:

Chris Davis

Date Validated:

December 6, 2012

Reviewer:

Julie Lincoln

Date Reviewed:

December 7, 2012

Sample Media:

Surface Water

Analytical Parameters

and Methods:

- 1. Total and Dissolved Metals (cadmium, chromium, nickel, selenium, vanadium, and zinc); 200.8 2. Dissolved Cations (calcium, magnesium); 200.8
- 3. Hardness; SM2340B

Sample Identifications:

IA1-30A-100112

IA1-28A-100112

IA1-55-100112

DUP-100112-A (field duplicate for IA1-55-100112)

1. PRESERVATION AND HOLDING TIMES

Preservation: Acceptable.

Holding Time: Acceptable.

2. BLANKS

Non-detected for all laboratory reagent blanks (LRBs).

Qualification: No qualification was necessary.

3. LABORATORY CONTROL SAMPLES

Acceptable.

4. DUPLICATE ANALYSES

Acceptable.

5. SPIKE SAMPLE ANALYSES

Acceptable. Note that the percent recoveries (%Rs) of -6560% and -6580% for dissolved calcium and 44% and 54% for magnesium in the matrix spike (MS)/matrix spike duplicate (MSD), and 66% for total selenium in the MS analyses of sample DUP-100112-A (10207426-004) (field duplicate for sample IA1-55-100112) exceeded the 75-125%R control limits for metals. For sample results that exceed four-times the concentration of the spike, spike recovery limits do not apply and the data are not considered to exceed acceptance criteria, even if the %Rs do not meet the specified control limits, as specified in the Functional Guidelines. As the sample results exceeded four times the spike, no qualifiers are applicable.

6. OVERALL ASSESSMENT

No other issues were identified.





October 15, 2012

Mitchell Hart Nu-West Industries, Inc 3010 Conda Road Soda Springs, ID 83276

RE: Project: North Maybe Mine

Pace Project No.: 10207426

Dear Mitchell Hart:

Enclosed are the analytical results for sample(s) received by the laboratory on October 03, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sally Heinje

sally.heinje@pacelabs.com Project Manager

Sally-1600

Enclosures

cc: Cindy Emmons, Norwest Corporation James Williams, Agrium





CERTIFICATIONS

Project:

North Maybe Mine

Pace Project No.:

10207426

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414 A2LA Certification #: 2926.01 Alaska Certification #: UST-078 Alaska Certification #MN00064 Arizona Certification #: AZ-0014 Arizona Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace Connecticut Certification #: PH-0256 EPA Region 8 Certification #: Pace Florida/NELAP Certification #: E87605 Georgia Certification #: 959 Hawaii Certification #Pace Idaho Certification #: MN00064 Illinois Certification #: 200011 Kansas Certification #: E-10167 Louisiana Certification #: 03086 Louisiana Certification #: LA080009 Maine Certification #: 2007029 Maryland Certification #: 322 Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092 Nevada Certification #: MN_00064 Nebraska Certification #: Pace New Jersey Certification #: MN-002 New York Certification #: 11647 North Carolina Certification #: 530 North Dakota Certification #: R-036 North Dakota Certification #: R-036A Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Certification #: MN200001 Oregon Certification #: MN300001 Pennsylvania Certification #: 68-00563 Puerto Rico Certification Tennessee Certification #: 02818 Texas Certification #: T104704192 Virginia/VELAP Certification #: 460163 Washington Certification #: C754 West Virginia Certification #: 382 Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project:

North Maybe Mine

Pace Project No.:

10207426

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10207426001	IA1-30A-100112	Water	10/01/12 12:40	10/03/12 09:33
10207426002	IA1-28A-100112	Water ·	10/01/12 12:55	10/03/12 09:33
10207426003	IA1-55-100112	Water	10/01/12 13:10	10/03/12 09:33
10207426004	DUP-100112-A	Water	10/01/12 13:30	10/03/12 09:33





SAMPLE ANALYTE COUNT

Project:

North Maybe Mine

Pace Project No.:

10207426

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10207426001	IA1-30A-100112	EPA 200.8	RJS	6	PASI-M
	•	EPA 200.8	RJS	9	PASI-M
10207426002	IA1-28A-100112	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
10207426003	IA1-55-100112	EPA 200.8	RJS	6	PASI-M
		EPA 200.8	RJS	9	PASI-M
10207426004	DUP-100112-A	EPA 200.8	RJS	6	PASI-M
	•	EPA 200.8	RJS	9	PASI-M



PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No .:

10207426

Method:

EPA 200.8

Description: 200.8 MET ICPMS **Client:** Agrium- Nu-West

Client: Date:

October 15, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

ternal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/35542

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10207426004,10207466001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

• MS (Lab ID: 1302168)

Selenium

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10207426

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: Date:

Agrium- Nu-West October 15, 2012

General Information:

4 samples were analyzed for EPA 200.8. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:

The samples were prepared in accordance with EPA 200.8 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/35541

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10207426004

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1302163)
 - · Calcium, Dissolved
 - · Magnesium, Dissolved
- MSD (Lab ID: 1302164)
 - · Calcium, Dissolved
 - Magnesium, Dissolved

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project:

North Maybe Mine

Pace Project No.:

10207426

Method:

EPA 200.8

Description: 200.8 MET ICPMS, Dissolved

Client: Date: Agrium- Nu-West October 15, 2012

Analyte Comments:

QC Batch: MPRP/35541

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

MS (Lab ID: 1302163)
Calcium, Dissolved
MSD (Lab ID: 1302164)
Calcium, Dissolved

This data package has been reviewed for quality and completeness and is approved for release.





Project:

North Maybe Mine

Pace Project No.:

10207426

Sample: IA1-30A-100112	Lab ID: 1020	7426001 Collec	ted: 10/01/1	2 12:40	Received: 10	/03/12 09:33 M	atrix: Water	
Parameters	Results Ur	iits PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Metho	od: EPA 200.8 Pre	paration Met	hod: EP	A 200.8			•
Cadmium	0.00041 mg/L	0.000080	0.000028	1	10/04/12 18:57	10/09/12 21:13	7440 42 0	
Chromium	0.0045 mg/L	0.00050	-	1	10/04/12 18:57	10/09/12 21:13		
Nickel	0.0075 mg/L	0.00050		1	10/04/12 18:57	10/09/12 21:13		
Selenium	2.0 mg/L	0.0050		10	10/04/12 18:57	10/11/12 14:05		
Vanadium	0.021 mg/L	0.00010		1	10/04/12 18:57			
Zinc	0.014 mg/L	0.0050		1	10/04/12 18:57	10/09/12 21:13		
200.8 MET ICPMS, Dissolved	Analytical Metho	d: EPA 200.8 Pre	paration Meth	nod: EPA	A 200.8			
Cadmium, Dissolved	0.00031 mg/L	0.000080	0.000028	1	10/04/12 18:55	10/06/12 07:35	7440-43-9	
Calcium, Dissolved	183 mg/L	0.40	0.20	20	10/04/12 18:55	10/08/12 17:46	7440-70-2	
Chromium, Dissolved	0.0045 mg/L	0.00050	0.000094	1	10/04/12 18:55	10/06/12 17:40		
Magnesium, Dissolved	26.6 mg/L	0.025	0.012	5	10/04/12 18:55	10/06/12 07:39	7439-95-4	
Nickel, Dissolved	0.0069 mg/L	0.00050	0.00015	1	10/04/12 18:55	10/06/12 07:35		
Selenium, Dissolved	2.0 mg/L	0.0025	0.00047	5	10/04/12 18:55			
Total Hardness by 2340B, Dissolved	566 mg/L	1.4	0.71	20	10/04/12 18:55	10/06/12 07:39 10/08/12 17:46	1102-49-2	
/anadium, Dissolved	0.020 mg/L	0.00010	0.000037	1	10/04/12 18:55	10/06/12 07:35	7440 62 2	
Zinc, Dissolved	0.013 mg/L	0.0050	0.0010	1	10/04/12 18:55	10/10/12 09:33		

10/04/12 18:55 10/10/12 09:33 7440-66-6

Date: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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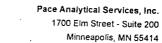
Project:

North Maybe Mine

Pace Project No.:

10207426

Lab ID: 102074260	02 Collecte	ed: 10/01/1	2 12:55	Received: 10/	03/12 09:33 Ma	atrix: Water	
Results Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
Analytical Method: EP	A 200.8 Prep	paration Met	nod: EP	A 200.8			
0.00076 mg/L	0.000080	0.000028	1	10/04/12 18:57	10/09/12 21:17	7440-43-9	
0.0049 mg/L	0.00050	0.000094	1	10/04/12 18:57	10/09/12 21:17	7440-47-3	
0.017 mg/L	0.00050	0.00015	1	10/04/12 18:57	10/09/12 21:17	7440-02-0	
2.1 mg/L	0.0050	0.00094	10	10/04/12 18:57	10/11/12 14:10	7782-49-2	
0.035 mg/L	0.00010	0.000037	1	10/04/12 18:57	10/09/12 21:17	7440-62-2	
0.023 mg/L	0.0050	0.0010	1	10/04/12 18:57	10/09/12 21:17	7440-66-6	
Analytical Method: EP	A 200.8 Prep	aration Meth	nod: EP/	A 200.8			
0.00030 mg/L	0.000080	0.000028	1	10/04/12 18:55	10/06/12 08:25	7440-43-9	
160 mg/L	0.40	0.20	20	10/04/12 18:55	10/08/12 17:51	7440-70-2	
0.0048 mg/L	0.00050	0.000094	1	10/04/12 18:55	10/06/12 08:25	7440-47-3	
28.2 mg/L	0.010	0.0046	. 2	10/04/12 18:55	10/10/12 09:38	7439-95-4	
0.016 mg/L	0.00050	0.00015	1	10/04/12 18:55	10/06/12 08:25	7440-02-0	
2.0 mg/L	0.0025	0.00047	5	10/04/12 18:55	10/06/12 08:29	7782-49-2	
516 mg/L	1.4	0.71	20	10/04/12 18:55	10/08/12 17:51		
0.035 mg/L	0.00010	0.000037	1	10/04/12 18:55	10/06/12 08:25	7440-62-2	
0.026 mg/L	0.010	0.0020	2	10/04/12 18:55	10/10/12 09:38	7440-66-6	
	Analytical Method: EP 0.00076 mg/L 0.0049 mg/L 0.017 mg/L 2.1 mg/L 0.035 mg/L 0.023 mg/L Analytical Method: EP 0.00030 mg/L 160 mg/L 0.0048 mg/L 28.2 mg/L 0.016 mg/L 2.0 mg/L 516 mg/L 0.035 mg/L	Results Units PQL 0.00076 mg/L 0.00080 0.00050 0.017 mg/L 0.00050 0.0050 0.017 mg/L 0.0050 0.0050 0.035 mg/L 0.00010 0.0050 Analytical Method: EPA 200.8 Prep 0.00080 160 mg/L 0.00080 0.40 0.0048 mg/L 0.00050 0.010 0.016 mg/L 0.00050 0.0025 516 mg/L 1.4 0.0035 mg/L 0.00010	Results Units PQL MDL 0.00076 mg/L 0.000080 0.000028 0.0049 mg/L 0.00050 0.000094 0.017 mg/L 0.00050 0.00015 2.1 mg/L 0.0050 0.00094 0.035 mg/L 0.00010 0.000037 0.023 mg/L 0.0050 0.0010 Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 Preparation Method: EPA 200.8 Preparation Method: EPA 200.8 Preparation Method: EPA 200.00080 0.000028 0.00030 mg/L 0.000080 0.000028 160 mg/L 0.40 0.20 0.0048 mg/L 0.00050 0.00094 28.2 mg/L 0.010 0.0046 0.016 mg/L 0.0025 0.00047 516 mg/L 1.4 0.71 0.035 mg/L 0.00010 0.000037	Results Units PQL MDL DF 0.00076 mg/L 0.000080 0.000028 1 0.00050 0.000094 1 1 0.017 mg/L 0.00050 0.000094 1 1 0.035 mg/L 0.0050 0.00094 10 0.035 mg/L 0.023 mg/L 0.00010 0.000037 1 0.0030 mg/L 0.0050 0.0010 1 Analytical Method: EPA 200.8 Preparation Method: EPA 0.00030 mg/L 0.00080 0.000028 1 160 mg/L 0.40 0.20 20 0.0048 mg/L 0.0050 0.000094 1 28.2 mg/L 0.010 0.0046 2 0.016 mg/L 0.00050 0.00015 1 2.0 mg/L 0.0025 0.00047 5 516 mg/L 1.4 0.71 20 0.035 mg/L 0.00010 0.000037 1	Results Units PQL MDL DF Prepared Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 0.00076 mg/L 0.000080 0.000028 1 10/04/12 18:57 0.0049 mg/L 0.00050 0.00094 1 10/04/12 18:57 0.017 mg/L 0.00050 0.00094 10 10/04/12 18:57 2.1 mg/L 0.0050 0.00094 10 10/04/12 18:57 0.035 mg/L 0.00010 0.000037 1 10/04/12 18:57 0.023 mg/L 0.0050 0.0010 1 10/04/12 18:57 Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 0.00030 mg/L 0.000080 0.00028 1 10/04/12 18:55 160 mg/L 0.40 0.20 20 10/04/12 18:55 0.0048 mg/L 0.00050 0.00094 1 10/04/12 18:55 28.2 mg/L 0.010 0.0046 2 10/04/12 18:55 0.016 mg/L 0.0050 0.00015 1 10/04/12 18:55 2.0 mg/L 0.0025 0.00047 5 10/04/12 18:55 2.0 mg/L 0.0025 0.00047 5 10/04/12 18:55 516 mg/L 0.0025 0.00037 1 10/04/12 18:55 0.035 mg/L 0.00010 0.000037 1 10/04/12 18:55	Results Units PQL MDL DF Prepared Analyzed 0.00076 mg/L 0.000080 0.000028 1 10/04/12 18:57 10/09/12 21:17 0.0049 mg/L 0.00050 0.000094 1 10/04/12 18:57 10/09/12 21:17 0.017 mg/L 0.00050 0.00015 1 10/04/12 18:57 10/09/12 21:17 2.1 mg/L 0.0050 0.00094 10 10/04/12 18:57 10/11/12 14:10 0.035 mg/L 0.00010 0.000037 1 10/04/12 18:57 10/09/12 21:17 0.023 mg/L 0.0050 0.0010 1 10/04/12 18:57 10/09/12 21:17 Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 0.00030 mg/L 0.00080 0.00028 1 10/04/12 18:55 10/06/12 08:25 160 mg/L 0.40 0.20 20 10/04/12 18:55 10/06/12 08:25 28.2 mg/L 0.010 0.00046 2 10/04/12 18:55 10/06/12 08:25 2.0 mg/L 0.0025 0.00047 5 10/04/12 18:55 10/06/12 08:25 <	Results Units PQL MDL DF Prepared Analyzed CAS No. 0.00076 mg/L 0.000080 0.000028 1 10/04/12 18:57 10/09/12 21:17 7440-43-9 0.0049 mg/L 0.00050 0.000094 1 10/04/12 18:57 10/09/12 21:17 7440-47-3 0.017 mg/L 0.0050 0.00015 1 10/04/12 18:57 10/09/12 21:17 7440-02-0 2.1 mg/L 0.0050 0.00094 10 10/04/12 18:57 10/11/12 14:10 7782-49-2 0.035 mg/L 0.00010 0.000037 1 10/04/12 18:57 10/09/12 21:17 7440-66-6 Analytical Method: EPA 200.8 Preparation Method: EPA 200.8 8 0.00030 mg/L 0.000080 0.000028 1 10/04/12 18:55 10/06/12 08:25 7440-43-9 160 mg/L 0.40 0.20 20 10/04/12 18:55 10/06/12 08:25 7440-43-9 0.0048 mg/L 0.00050 0.000094 1 10/04/12 18:55 10/06/12 08:25 7440-47-3 28.2 mg/L 0.010 0.00046



(612)607-1700



ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.: 10207426

Sample: IA1-55-100112	Lab ID: 10	0207426003	Coilect	ted: 10/01/1	2 13:10	Received: 10	/03/12 09:33 N	latrix: Water	
Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Me	ethod: EPA 2	.00.8 Prej	paration Met	hod: EP	A 200.8			-
Cadmium	0.0023 mg/L		0.000080		1	10/04/12 18:57	10/09/12 21:21	7440 42 0	•
Chromium	0.0053 mg/L		0.00050	0.000094	1	10/04/12 18:57	10/09/12 21:21		
Nickel	0.020 mg/L		0.00050	0.00015	1	10/04/12 18:57	10/09/12 21:21		
Selenium	2.1 mg/L		0.0050	0.00094	10	10/04/12 18:57	10/11/12 05:39		
Vanadium	0.036 mg/L		0.00010	0.000037	1	10/04/12 18:57	10/11/12 05:39		
Zinc	0.085 mg/L		0.0050	0.0010	1	10/04/12 18:57	10/09/12 21:21		
200.8 MET ICPMS, Dissolved	Analytical Me	thod: EPA 20	00.8 Prep	aration Meth	nod: EP/	A 200.8		7	
Cadmium, Dissolved	0.0023 mg/L		0.000080	0.000028	1	10/04/12 18:55	10/06/12 00:47	7440 40 0	
Calcium, Dissolved	206 mg/L		0.40	0.20	20	10/04/12 18:55	10/06/12 08:47 10/08/12 17:55		
Chromium, Dissolved	0.0049 mg/L		0.00050	0.000094	1	10/04/12 18:55			
Magnesium, Dissolved	28.3 mg/L		0.025	0.012	5	10/04/12 18:55	10/06/12 08:47 10/10/12 09:42		
Nickel, Dissolved	0.020 mg/L		0.00050	0.00015	1	10/04/12 18:55			
Selenium, Dissolved	2.1 mg/L		0.0025	0.00047	5	10/04/12 18:55	10/06/12 08:47	_	
Total Hardness by 2340B, Dissolved	632 mg/L		1.4	0.71	20	10/04/12 18:55	10/10/12 09:42 10/08/12 17:55	7782-49-2	
Vanadium, Dissolved	0.035 mg/L		0.00010	0.000037	1	10/04/12 18:55	10/06/12 00:47	7440.00.0	
Zinc, Dissolved	0.097 mg/L		0.025	0.0050	5	10/04/12 18:55	10/06/12 08:47 10/10/12 09:42		

Date: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project:

North Maybe Mine

Pace Project No.:

10207426

Sample: DUP-100112-A	Lab ID: 10207	426004 Collec	ed: 10/01/1	2 13:30	Received: 10	/03/12 09:33 M	latrix: Water	
Parameters	Results Unit	s PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.8 MET ICPMS	Analytical Method	I: EPA 200.8 Pre	paration Met	hod: EP	A 200.8	- 		
Cadmium	0.0023 mg/L	0.000080	0.000028	1	10/04/12 18:57	10/09/12 21:26	7440-43-9	
Chromium	0.0052 mg/L	0.00050	0.000094	1	10/04/12 18:57	10/09/12 21:26		
Nickel	0.021 mg/L	0.00050	0.00015	1	10/04/12 18:57	10/09/12 21:26		
Selenium	2.0 mg/L	0.0025	0.00047	5	10/04/12 18:57	10/09/12 21:41		M1
Vanadium	0.036 mg/L	0.00010	0.000037	1	10/04/12 18:57	10/09/12 21:26		144 1
Zinc	0.087 mg/L	0.0050	0.0010	1	10/04/12 18:57	10/09/12 21:26		
200.8 MET ICPMS, Dissolved	Analytical Method	: EPA 200.8 Prep	aration Meth	nod: EPA	A 200.8			
Cadmium, Dissolved	0.0022 mg/L	0.000080	0.000028	1	10/04/12 18:55	10/06/12 08:55	7440-43-9	
Calcium, Dissolved	200 mg/L	0.40	0.20	20	10/04/12 18:55	10/08/12 18:00		M1
Chromium, Dissolved	0.0049 mg/L	0.00050	0.000094	1	10/04/12 18:55	10/06/12 08:55		141 1
Magnesium, Dissolved	28.3 mg/L	0.025	0.012	5	10/04/12 18:55	10/10/12 09:46		M1
Nickel, Dissolved	0.019 mg/L	0.00050	0.00015	1	10/04/12 18:55	10/06/12 08:55		IVIII
Selenium, Dissolved	2.1 mg/L	0.0025	0.00047	5	10/04/12 18:55	10/10/12 09:46	-	
Total Hardness by 2340B, Dissolved	615 mg/L	1.4	0.71	20	10/04/12 18:55	10/08/12 18:00	7,02-43-2	
anadium, Dissolved	0.035 mg/L	0.00010	0.000037	1	10/04/12 18:55	10/06/12 08:55	7440-62-2	
inc, Dissolved	0.083 mg/L	0.025	0.0050	5	10/04/12 18:55	10/10/12 09:46		

Date: 10/15/2012 02:19 PM





QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10207426

QC Batch:

MPRP/35542

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET

Associated Lab Samples:

10207426001, 10207426002, 10207426003, 10207426004

METHOD BLANK: 1302165

Matrix: Water

Associated Lab Samples:

10207426001, 10207426002, 10207426003, 10207426004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	mg/L	<0.000028	0.000080	10/09/12 20:12	
Chromium	mg/L	< 0.000094	0.00050	10/09/12 20:12	
Nickel	mg/L	< 0.00015	0.00050	10/09/12 20:12	
Selenium	mg/L	< 0.000094	0.00050	10/09/12 20:12	
Vanadium	mg/L	< 0.000037	0.00010	10/09/12 20:12	
Zinc	mg/L	< 0.0010	0.0050	10/09/12 20:12	

LABORATORY CONTROL SAMPLE: 1302166

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits -	Qualifiers
Cadmium	mg/L	.08	0.082	103	85-115	
Chromium	mg/L	.08	0.081	101	85-115	
Nickel	mg/L	.08	0.087	109	85-115	
Selenium	mg/L,	.08	0.080	100	85-115	•
Vanadium	mg/L	.08	0.082	103	85-115	
Zinc	mg/L	.08	0.084	105	85-115	

MATRIX	SPIKE	SAMPLE:	

1302167

1302168

Parameter	Units	10207466001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium	mg/L	<0.000080	.08	0.080	100	70-130	
Chromium	mg/L	<0.0010	.08	0.080	100	70-130	
Nickel	mg/L	< 0.00050	.08	0.087	108	70-130	
Selenium	mg/L	< 0.0010	.08	0.079	99	70-130	
Vanadium	mg/L	<0.10 ug/L	.08	0.081	101	70-130	
Zinc	mg/L	<0.0080	.08	0.086	108	70-130	

MATRIX SPIKE &	MATRIX SPIKE DUPLICATE:	

1302169

					.002.00							
Parameter	10 Units	207426004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	· MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Cadmium	mg/L	0.0023	.08	.08	0.083	0.083	101	101	70-130	.5	20	
Chromium	mg/L	0.0052	.08	.08	0.084	0.085	98	100	70-130			
Nickel	mg/L	0.021	.08	.08	0.11	0.11	106	106	70-130	_	20	
Selenium	mg/L	2.0	.08	.08	2.1	2.1	66	97	70-130	1	20	M1
Vanadium	mg/L	0.036	.08	.08	0.12	0.12	100	102	70-130	2	20	
Zinc	mg/L	0.087	.08	.08	0.17	0.18	107	121	70-130	6	20	

Date: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

North Maybe Mine

Pace Project No.:

10207426

QC Batch:

MPRP/35541

Analysis Method:

EPA 200.8

QC Batch Method:

EPA 200.8

Analysis Description:

200.8 MET Dissolved

Associated Lab Samples:

10207426001, 10207426002, 10207426003, 10207426004

METHOD BLANK: 1302161

Matrix: Water

Associated Lab Samples:

10207426001, 10207426002, 10207426003, 10207426004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Codmisson Disposits and					
Cadmium, Dissolved	mg/L	<0.000028	0.000080	10/06/12 07:57	
Calcium, Dissolved	mg/L	< 0.010	0.020	10/06/12 07:57	
Chromium, Dissolved	mg/L	< 0.000094	0.00050	10/06/12 07:57	
Magnesium, Dissolved	mg/L	< 0.0023	0.0050	10/06/12 07:57	
Nickel, Dissolved	mg/L	< 0.00015	0.00050	10/06/12 07:57	
Selenium, Dissolved	mg/L	< 0.000094	0.00050	10/06/12 07:57	
Total Hardness by 2340B, Dissolved	mg/L	<0.036	0.071	10/06/12 07:57	
Vanadium, Dissolved	mg/L	< 0.000037	0.00010	10/06/12 07:57	,
Zinc, Dissolved	mg/L	< 0.0010	0.0050	10/10/12 14:50	,

Parameter	· Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
admium, Dissolved	mg/L	.08	0.081	102	85-115	
alcium, Dissolved	mg/L	1	1.0	102	85-115	
hromium, Dissolved	mg/L	.08	0.080	100	85-115	
agnesium, Dissolved	mg/L	1	1.0	102	85-115	
ckel, Dissolved	- mg/L	.08	0.083	104	85-115	•
elenium, Dissolved	mg/L	.08	0.084	105	85-115	
tal Hardness by 2340B, ssolved	mg/L	6.6	6.7	102	85-115	
anadium, Dissolved	mg/L	.08	0.080	99	85-115	
nc, Dissolved	mg/L	.08	0.079	99	85-115	

MATRIX SPIKE & MATRIX SF	PIKE DUPLICAT	E: 13021	63		1302164							
Parameter	10: Units	207426004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	
Cadmium, Dissolved	mg/L	0.0022	.08	.08	0.081	0.083	98	100	70-130		20	
Calcium, Dissolved	mg/L	200	1	1	134	134	-6560	-6580	70-130	.2	20	E.M1
Chromium, Dissolved	mg/L	0.0049	.08	.08	0.082	0.083	96	98	70-130	1	20	,
Magnesium, Dissolved	mg/L	28.3	1	1	28.7	28.8	44	54	70-130	.3	20	M1
Nickel, Dissolved	mg/L	0.019	.08	.08	0.099	0.10	100	101	70-130	1	20	
Selenium, Dissolved	mg/L	2.1	.08	.08	2.2	2.2	128	100	70-130	1	20	
Total Hardness by 2340B, Dissolved	mg/L	615	6.6	6.6	453	453	-2450	-2450	70-130	.05	20	
Vanadium, Dissolved	mg/L	0.035	.08	.08	0.11	0.11	97	96	70-130	.6	20	
Zinc, Dissolved	mg/L	0.083	.08	.08	0.16	0.17	102	109	70-130	3	20	

Date: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project:

North Maybe Mine

Pace Project No.:

10207426

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-M

Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

Ε

Analyte concentration exceeded the calibration range. The reported result is estimated.

M1

Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Date: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

North Maybe Mine

Pace Project No.:

10207426

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10207426001	IA1-30A-100112	EPA 200.8	MPRP/35542	EPA 200.8	ICPM/14014
10207426002	IA1-28A-100112	EPA 200.8	MPRP/35542	EPA 200.8	ICPM/14014
10207426003	IA1-55-100112	EPA 200.8	MPRP/35542	EPA 200.8	ICPM/14014
10207426004	DUP-100112-A	EPA 200.8	MPRP/35542	EPA 200.8	ICPM/14014
10207426001	IA1-30A-100112	EPA 200.8	MPRP/35541	EPA 200.8	ICPM/13991
10207426002	IA1-28A-100112	EPA 200.8	MPRP/35541	EPA 200.8	ICPM/13991
10207426003	IA1-55-100112	EPA 200.8	MPRP/35541	EPA 200.8	ICPM/13991
10207426004	DUP-100112-A	EPA 200.8	MPRP/35541	EPA 200.8	ICPM/13991

Jate: 10/15/2012 02:19 PM

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10207426

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Table 4-1 Surface water Analyte List for April, May, June, August, September and October

Analyte	Analytical	Conta	iner Size	Container	Preservative	Holding Time	Detection
	Method	Total	Dissolved	Material			Limit/Units
Cadmium - total & dissolved*	EPA M200.8						0.1 µg/L
Chromium – total & dissolved*	EPA M200.8				·.		0.1 µg/L
Nickel - total & dissolved*	EPA M200.8	250		Dalumahu da a a	\$ P4-2 - A -1 1	100 5	0.6 μg/L
Selenium - total & dissolved*	EPA M200.8	250 ml	050 11	Polyethylene	Nitric Acid	180 Days	0.1 μg/L
Vanadium – total & dissolved*	EPA M200.8		250 mi*				0.2 µg/L
Zinc – total & dissolved*	EPA M200.8						2 μg/L
Hardness	EPA SM2340B (Calculated)	-		Polyethylene	Nitric Acid	180 Days	2 mg/L
pH	Field	-	-	-	-		standard units
ORP	Field	-			-	1	mV
Dissolved Oxygen	Field	-		-	-	1	mg/L
Conductivity	Field		-	-	-	Analyze immediately	µmhos/cm
Temperature	Field	•	-		_		°C
Turbidity	Field	-	-	-			NTU

^{*} Sample for dissolved analysis will be field filtered using a disposable 0.45 micron filter prior to preservation ml = milliliters

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

µmhos/cm = micromhos per centimeter

°C = degrees Celsius

NTU = nephelometric turbidity units



Project Manager Review:

Document Name:

Sample Condition Upon Receipt Form

Document No.: F-MN-L-213-rev.04 Document Revised: 22Aug2012

Page 1 of 1

Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt And Comment	UCST		Project	* WO#:10207426
Courier: Fed Ex UPS Commercial Pace Tracking Number: 4569 1406 4607	USPS	r:	- Client	10207426
· · · · · · · · · · · · · · · · · · ·				
Custody Seal on Cooler/Box Present? Yes]No	Seals	Intact?	Yes No Optional: Proj. Due Date: Proj. Name:
Packing Material: Bubble Wrap Bubble B	ags 🔲	None [Other:_	Temp Blank?
Thermometer Used: 2888A912167504 80512447	Type o	fice:	Wet [☐Blue ☐None ☐Samples on ice, cooling process has begun
Cooler Temperature: 5-3 Biological Tissue Fr				
Temp should be above freezing to 6°C	ozen: _		אט סאן	ite and Initials of Person Examining Contents: 😕 (10 3 - 1 2
· .				Comments:
Chain of Custody Present?	Yes	□No	□N/A	1.
Chain of Custody Filled Out?	Ves	□No	□n/a	2.
Chain of Custody Relinquished?	Yes	□No	□N/A	3.
Sampler Name and/or Signature on COC?	Yes	□No	□N/A	4.
Samples Arrived within Hold Time?	Ves	□No	□N/A	5.
Short Hold Time Analysis (<72 hr)?	☐Yes	DNo	□n/a	6.
Rush Turn Around Time Requested?	Yes	□No	□N/A	7.
Sufficient Volume?	Yes	□No	□N/A	8.
Correct Containers Used?	Yes	□No	□N/A	9.
-Pace Containers Used?	✓Yes	□No	□N/A	
Containers Intact?	✓Yes	□No	□N/A	10.
Filtered Volume Received for Dissolved Tests?	Yes	□No	□N/A	11.
Sample Labels Match COC?	Yes	□No	□N/A	12.
-Includes Date/Time/ID/Analysis Matrix: Wi		_		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	Yes	□No	□n/a	13. ☐HNO₃ ☐H₂SO₄ ☐NaOH ☐HCI
All containers needing preservation are found to be in		_		Sample #
compliance with EPA recommendation?	Yes	□No	□N/A	304,784,558UP
(HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Collform, TOC, Oil and Grease,	_			
WI-DRO (water)	Yes	No		Initial when completed:
Headspace In VOA Vials (>6mm)?	□Yes	∏No	ØN/A	14.
Trip Blank Present?	∐Yes	□No	ØN/A	15. Y
Trip Blank Custody Seals Present?	☐Yes	□No	N/A	
Pace Trip Blank Lot # (If purchased):	·			
CLIENT NOTIFICATION/RESOLUTION				Field Data Required? Yes No
Person Contacted:		•	£	Date/Time:
Comments/Resolution:				
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Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, Incorrect preservative, out of temp, incorrect containers)

Date:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10

1200 SIXTH AVENUE SEATTLE, WA 98101

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